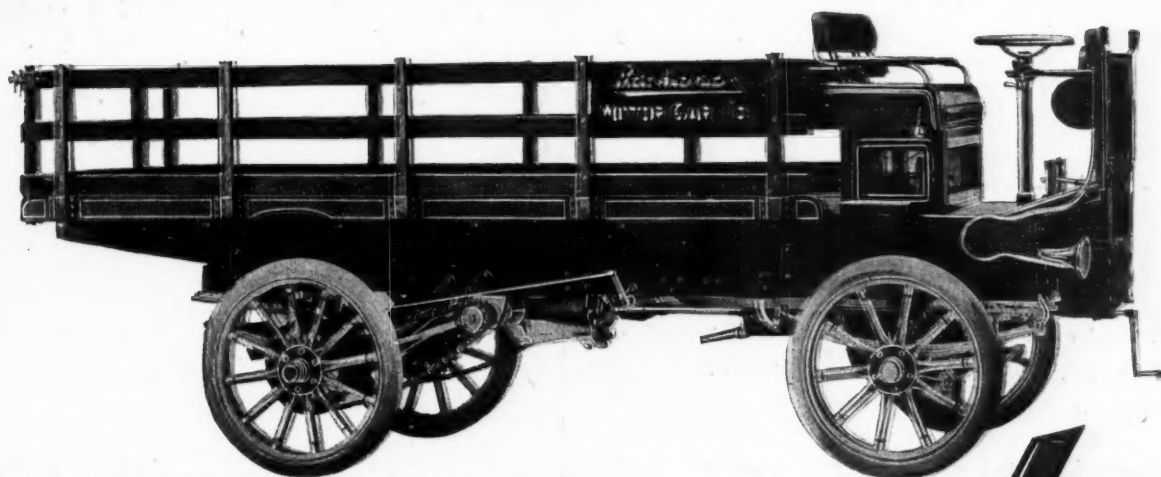


MOTOR AGE

Vol. VII No. 17

CHICAGO, APRIL 27, 1905

Ten Cents



IN presenting the Packard Motor Truck, we offer a vehicle for commercial purposes, the design of which is based upon experiments extending over a period of two years with different constructions of business wagons. This particular type of car has seen almost every kind of commercial service during all of an exceptionally severe winter, and is now offered in full confidence that it is worthy to bear the Packard name into new fields.

Normal Load Capacity, 1 1-2 Tons.

Speed Range, 1 to 15 Miles per Hour.

Price of chassis complete ready for body, \$2500, f. o. b. factory. Body designs and quotations submitted upon application.

PACKARD MOTOR CAR CO., Member Association Licensed Automobile Manufacturers
NEW YORK BRANCH 1540 BROADWAY, DETROIT, MICH., U. S. A.

MORGAN & WRIGHT TIRES ARE GOOD TIRES



Mr. Hamilton Carhartt, a well-known Detroit manufacturer, took an extensive auto tour through Europe last year. Under date of Feb. 21st, this year, he wrote the following to Mr. Frank W. Eddy, Detroit, relative to his tire experience during the trip:

"After a journey of something over four thousand miles through England, France and Italy, we still had, at Naples, two Morgan & Wright tires intact on our machine, though during the same time we had used up several tires of other brands."

DAD SAYS THAT IF
THOSE RUSSIAN
SHIPS ARE AS HARD
TO PUNCTURE IN
PROPORTION TO
THEIR SIZE AS
HIS MORGAN &
WRIGHT TIRES ARE,
MR. TOGO WILL HAVE
A MIGHTY STRENUOUS
TIME TRYIN' TO
SINK 'EM

TEST TELLS.

We court the most thorough investigation of the merits of our tires by automobilists who are willing to accept as proof of what these tires will do, the bona fide statements of present users as to what they have done.

Clincher—Perfected Dunlop—Improved Cushion.

MORGAN & WRIGHT TIRES
ARE GOOD TIRES.

Morgan & Wright, Chicago

New York Boston Cleveland Detroit Atlanta San Francisco
Syracuse Philadelphia Dayton Minneapolis St. Louis Denver Los Angeles

MOTOR AGE

VOL. VII. NO. 17

CHICAGO, APRIL 27, 1905

\$2.00 Per Year

MOTOR CAR INVASION OF AFRICA



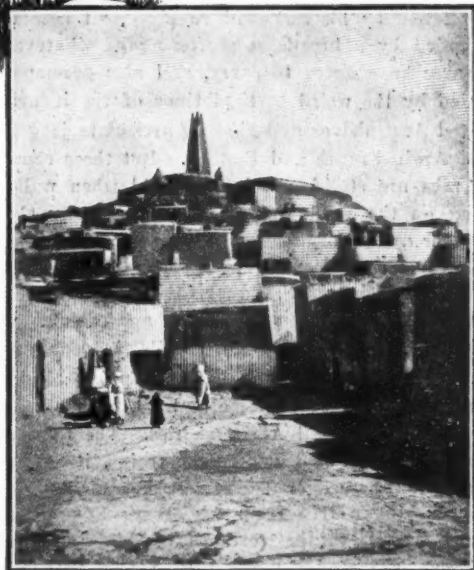
AN ALGERIAN STREAM

here but the infection spreads to animal life and bird life, numerous species of the latter being voiceless save for a few hoarse rasping monotones they spasmodically emit.

To this continent of reversals, to this land familiarly styled Darkest Africa, to this country looked upon by many as a barren tractless waste of sand in one place and flooded jungle in other places where the deadly testae fly lives in all freedom, the attention of the motorist has turned, and already the pathless wastes of the great Sahara desert, stretching from the Atlantic seaboard on the west almost to the very margin of the Red sea on the east and embracing within its bounds the most of the entire northern part of the continent, has been traversed by the all conquering motor car. The invasion has been unostentatious, not heralded with the beat of drum and clash of cymbal as when Scipio Africanus marched to conquest with his victorious Roman legions, but with the dull chug! chug! of the motor, an occasional toot of the horn and the omnipresent tail-end odor of burning gasoline and oil.

The invasion began with the Frenchman when he started building broad macadamized roads from such cities on the southern shore of the Mediterranean as Algiers or Tunis to points far inland, penetrating in places beyond the great gateway to the Sahara desert and over which he has since transported troops for the

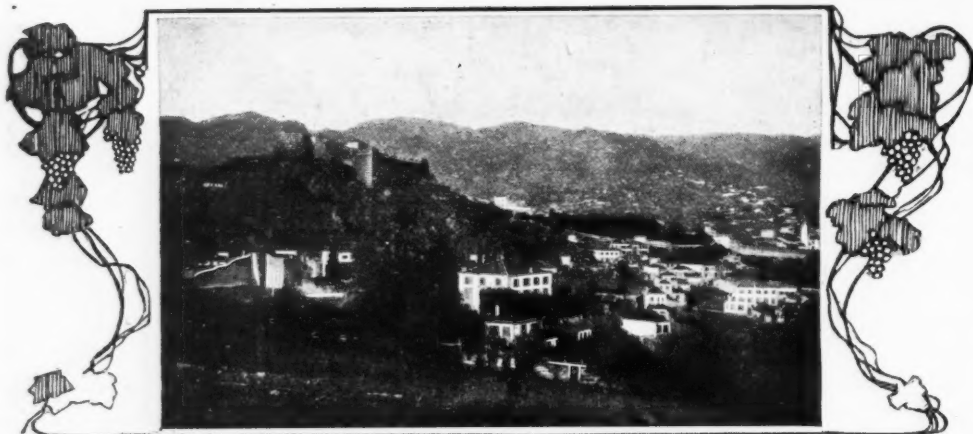
maintenance of peace within the French dominions in northern Africa, and from which places the merchant princes of Paris and other French cities have reaped bountiful harvests from their exchange in the numerous products of the country. But the roads were not long to remain highways for military demonstrations. Within the mother country the fast racing cars provoked the wrath of the government and many tourists desiring free and unhampered touring shipped their cars across the Mediterranean and so began the motorizing of northern Africa. But the northern part of the country, while adjacent to France and but a short distance from England, is not the only part of Africa that the motor car is known in, in the south around Cape Town the heights of Table mountain have been scaled and in many of the surrounding islands along



AT GARDHARA

TANTALIZING Africa has been the graveyard of many heroes. Explorers have at the moment when success seemed within their grasp fallen victims to the deadly fevers so common to that continent. Military heroes who courted victory on almost every field in other lands have utterly failed in tactics and stratagem when directing campaigns in the veldt of southern Africa or over the sands of the Soudan. This reversal of the general order of things so common, even goes farther than the conditions controlled by man, for in Africa the diamonds and other precious stones are found in the valleys and plains while in America we seek and find them in the mountains. Vegetable nature is not free from these unlooked for fetters, many of the flowers of brilliant foliage being destitute of those fragrant aromas so closely associated with flowering plants in Europe and on this side of the Atlantic. Nor can we stop

the west coast, where roads are anything from a dry river bed to a mountain side, the continental motorists have taken themselves during the months when touring at home would be attendant with cool winds, rain, snow and mud. The experiences of these tourists have been legion and the incidents and accidents while interesting in many ways are not all tales of glory or record cutting, but are punctuated with 10 days or 2 weeks' delays for new parts that have to be shipped from points in



AMONG THE MADEIRAN HILLS

France, miles travelled through quicksand behind long trains of mules or in cases camels, and camping outside a prey to the harassing dust storm and also the wandering Arabs and Berbers so common in all parts.

In northern Africa by far the best roads are found being built according to the Frenchman's art founded on centuries of experience and previous centuries of Roman experience. These roads, many of them radiating from the city of Algiers, the capital of the French dependency of Algeria, which is one of the Barbary states bordering on the Mediterranean, are broad, white and hard, resembling those in the immediate vicinity of Paris. For long stretches the motorist travels on high speed with not even the thought of cross roads to molest the pleasure of the trip. The automobile, the modern ship of the desert, creates havoc amid the ranks of camel drivers in and around Algiers and Tunis, the latter a city several hundred miles to the east on the sea coast and the capital of a state of the same name. With the first sight of the motor car and particularly the first sniff of it the camel sets up a craning movement of the head which is soon followed by his awkward running gait accompanied by a broadcast scattering of whatever wares he chances to carry, and also accompanied by the weird gesticulations of the infuriated Arab driver and his half articulate jargon of Arab, French and English. But these same Arabs are stolid, absolutely stolid when walking on the road alone and overtaken by the motor car. They show no interest whatever in it, the only evidence they seem to show of its presence being in that they invariably cross to the other side of the road as it approaches.

Before starting an automobile journey arrangements must be made for shipping ahead large supplies of gasoline and oil, both scarce commodities in all African cities. The former has to be shipped by freight trains, its shipment on passenger trains not being allowed. In making a trip from Algiers or any other coast center to the northern boundary of the desert, a distance varying in places between 200 and 400 miles, a full stock of provisions and such tools as ropes, shovels, picks and chains must be carried. The wise tourist will take along half a dozen extra tire covers and as many inner tubes, for so soon as the car leaves the main French roads the rough rocks and ruts in the trails devour rubber at an astonishing rate.

About 100 miles south of the sea coast stretches the Atlas chain of mountains which must be climbed and descended before the long run to the entrance of the desert begins. The road over these mountains often reaches

an elevation of 6,000 feet, and in December and January snow falls are frequent. It often happens in crossing these heights that the summits are enveloped in dense fogs, rendering it impossible to go faster than the slow speed as the operator cannot see more than the length of the car ahead of him. The roads over these places are often successive ledges of rock 6 or 7 inches higher than the preceding one, the car doing a continual stair climbing ascent for several miles.

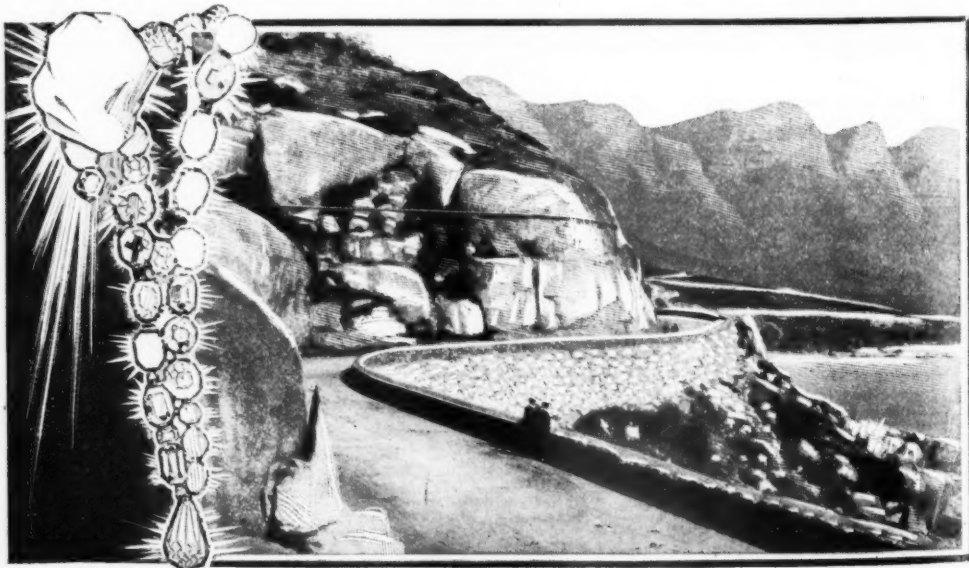
Once the hills are past the introduction to the desert begins. Without fences, without trees, without houses save a few mud huts here and there along the trail of a caravan route and without a well trod route the motorist must point the bonnet southward and prepare for the sand and the sun. Caravan routes are poor trails but serve well as guides. They are frequently nothing but several parallel ruts from which the motorist must steer clear if he has due regard for the fly wheel of his motor and the drop in the front axle. These routes are crossed every few miles by dried up river beds which in wet seasons are filled with rushing torrents, the result of an all-day rain, very common in those desert regions in certain seasons. In these gullies or ravines quicksand abounds and the motorist must steer clear of them even if such means a long detour. Once in the sand the car sinks to the axles and the wheels speed round in obedience to the motor, but the car remains stationary. In these places there are no adjoining farm houses where a team of horses can be secured or a telephone to call up a village or town and have another car come and act as rescuer. The only hope lies in the presence of camels or wandering Arabs,

a dozen or more of whom on a long rope attached to the front axle have more than once saved a motor car when in such a predicament.

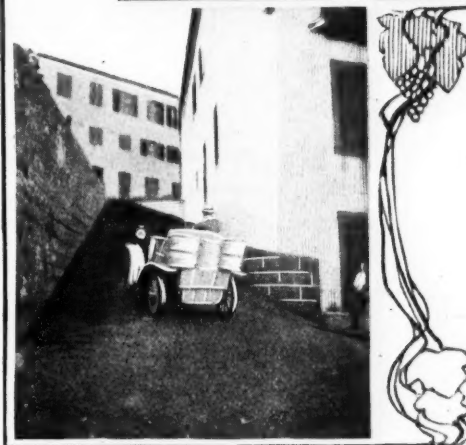
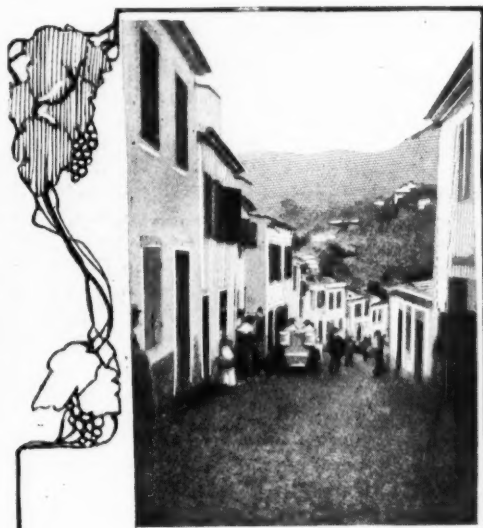
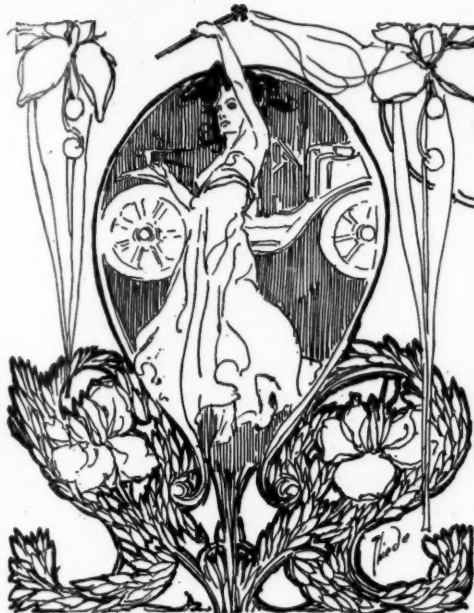
In these districts the land is rough and not endless stretches of sand as might be imagined. Large sand dunes or mounds follow one another in rapid succession and between them the car must wind its way, often over a hard sand surface for miles as firm as the Florida beach and then over paths strewn by chips of rocks and small boulders that eat up rubber and make an 8-mile an hour pace impossible.

Biskra is the magnet of the desert and is located 250 miles southeast of Algiers. It is thirty miles farther south in the desert than El Kantara, the gateway to the Sahara, but in spite of this difficult location no tourist in Africa has won his spurs until he has passed the massive gateways, and traversed the burning sands of the desert. Biskra is an ideal winter resort for many Europeans, and unlike most oasis has a good quota of well kept European hotels, beer gardens, concert halls and popular promenades. A certain number of houses built of European design stand out amid the Moorish architecture so common in Africa and are in striking contrast to many of the weather beaten walls of Biskra. The tourist who does not want experience can go by train direct to Biskra, taking his car along with him and be content with making the return trip only in his car. This rids the trip of half its charm and also half its discomforts.

But while Biskra is the farthest point the motorists so far have sought in the desert it is not so characteristically Arab as are other points. To see Arab life in its unadulterated forms a visit to Boghari is needed, a town of 5,000 inhabitants located about ten miles from the gateway of the desert. Here we meet with no evidences of European buildings, there is no train to land you at the door of a well-kept hotel and the tourist must consult his guide book or the few English engineers who are present if he wishes to find out the interesting places. Boghari is visited only by Arabs from neighboring districts who once a week bring their produce to the market. It is even a rare scene to see a person dressed in European fashion alight from a stage coach that connects Boghari with the nearest railway point to the north. The district in which this small Sahara town is located is perched like a crow's nest, with the desert on one hand and the fertile soil on the other. Nature has set a



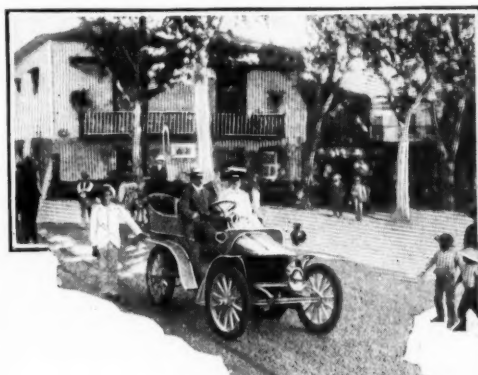
VICTORIA ROAD, TABLE MOUNTAIN, CAPE COLONY



TYPICAL STREET GRADES IN MADEIRA

machine, and that you are a competent person to drive it. In these islands the natives receive the car with various degrees of approval, the children in most cases actually walking into it so that you must stop or run over them and the men treating it indifferently, not even turning to look when you pass by. The purchase of gasoline in these places is often as difficult a proposition as is the negotiating of the roads. When you can buy it the price is 300 or 400 per cent higher than you are accustomed to pay, and then you are not certain as to the quality of it.

While northern Africa is much more advanced in motoring than the surrounding islands still in Cape Colony in the south the



IN A MADEIRA STREET

definite bound between the region on which the refreshing showers fall and that which is doomed to the scorching rays of the tropical sun. North of the town are hills 2,000 or 3,000 feet high, partly covered with a few green tufts and desert shrubs that do not afford sufficient shelter for the flocks of sheep often seen thereon. In all, the European population does not exceed fifty officials, most of whom are representatives of different European governments.

For the tourist who imagines many of the New York or Illinois roads the worst to be encountered in a motor car there is in store for him something entirely new in the roads on the islands of Madeira several hundred miles off the west coast of Northern Africa. The roads are the worst imaginable, abounding in steep grades and in villages being paved with stones of kidney-like shape. In the country there is no pretense at paving and the motorist never ventures on them. Only one good road is found on the island and that is a five-mile stretch along the coast between a couple of small fishing towns and over which the top speed can be used with pleasure and safety. The curiosity of landing a car on one of these islands is novel. The big liners do not approach within a mile or so owing to the poor harbors and shallow water. The first thought on contemplating a landing is to lower the car to the surface of the water and make a grand dash for the shore, but this is out of the question because of the poor bottom and the depth of the water. Generally the car is swung onto a junk or scow and rowed to within a few yards of the shore when the scow refuses to be pushed farther and a platform has to be erected from the scow to the shore over which the car is piloted to the great anxiety of the owner and the astonishment of the natives. Once landed the running the gauntlet of custom red tape begins and if you land late at night it means an all night watch with the car and a two or three hour wait the next morning before those important personages, the custom officials, are ready to investigate you and your car. When the work is finally completed you are presented with a formidable roll of documents, bearing the royal seal of Portugal or some other monarchy, and you are then fortunate if the performance is completed, for it frequently happens that these are followed in a week or ten days by a notice that you are prohibited from using the car until the native ruler has inspected it as to its not being an infernal



car is following in the wake of the recent Boer war and many who carried arms during the war have since traveled over the same soil in the small car. Around Cape Town, the capital of Cape Colony, the motoring interest centers in making the ascent of Table mountain a high rocky plateau in rear of the town. From the edge of the water to the foot of the mountain the land is level but there begin the circuitous climb which offers as its reward an unlimited prospect of the southern ocean, a panorama of Cape Town and a charming surrounding landscape.

Table mountain with its cap of fleecy cloudlets is familiar to everybody, through pictures if no other way, but to appreciate its magnificence and grasp its beauty one requires to make a trip around it, a distance of 33 miles. This drive on the Victorian road, a fine piece of engineering work, is quite a regular Saturday afternoon outing for Cape Town citizens. The gradient necessities running on the low gear throughout the entire ascent but this is not a hardship as it gives the driver and passengers an opportunity to enjoy the surrounding beauties of nature. In places the road, cut from the solid rock, is a narrow pathway between the summit and the level land beneath but the work has been so carefully carried out that all dangers of the trip are eliminated. On the road you pass numerous would-be pleasure resorts, several concert halls which on a Saturday afternoon are in gala attire and other amusement centers. But for these the motorist has little care so long as his single or two-cylinder car, so common there, continues the steady pace to the summit.

The return is easy. Engines are not needed except for breaking purposes and the exhilarating effect of the sea breezes fanning the face and battling as it were with the hot rays of the sun is a sensation entirely wanting on the roads in Algeria or Tunis.

But in South Africa, the motor car has advanced farther than the bounds of Cape Colony and is already a familiar sight in the Orange River Colony and north of the Vaal river, where the late President Kruger once held absolute sway. In the Orange River Colony the Great Karroo—a semi-desert tract, inhabited by Kaffirs and in many places destitute of vegetation, and nothing but a continuation of rocks and sand—has been traversed by small runabouts, piloted by miners and other prospectors.

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HELP THE A. M. L. HELP YOU



CONVENTION'S mother is still Necessity. Had we not a network of railroads throughout the country and a traveling public, we would not require the tons of railroad time tables and maps by

the aid of which the traveler can arrange his trips to any part of the country. Since we have steamboat lines plying across almost every body of water and passengers traveling by them every day, we require booklets giving details of the voyages—distances, relative expenses, places to visit, good hotel accommodations and a dozen of other points that the tourist should know.

And now that our citizens, in practically every part of the land, are already planning automobile trips to practically every other part, it is of necessity that we provide for them books filled with information on the condition of all the leading roads, the distances between places, exact directions to be followed in traveling over these roads, good hotels to lodge at, and stores where good gasoline can be bought.

This information is needed by every tourist who would make an extended tour through parts of the country unknown to him. A tourist starting for some point 400 or 500 miles distant without a knowledge of the best roads by which to travel and of the accommodations along that road, can be compared to a mariner sailing on an unknown sea without the aid of compass or chart and without knowing the character of the ports at which he is to stop.

In automobiling there are so many roads to choose from, and on the government or surveyors' map all roads look alike, that it is practically impossible to select a course from one of these. When on the road there are few people capable of giving directions as to the best road.

Farmers know the roads within 8 or 10 miles radius of where they reside and in towns the livery man is about the only source of information and often he is a very undiscoverable quantity, particularly when he is wanted.

The accumulation of such information has been undertaken by the American Motor League, which has invited all of its members to unite in the work. Already league members in every state in the union have been making road maps of the leading thoroughfares, accompanied with a minute description of the nature of each as well as explicit directions for the use of motorists in following the roads.

The league is verifying all of these and arranging to publish routes in book form, from time to time, for distribution among its members. The work has been going on for some time and is still being actively pushed, as readers of the league page in *MOTOR AGE* will be aware.

It is not the intention of the league to pub-

lish these route maps all at once but to arrange them in convenient form so that main roads routes will appear first and with them maps of towns and cities passed through, so that tourists will know how to enter and leave each as well as where to stop while therein and the best place for buying gasoline and motor car appurtenances.

MOTOR AGE considers this a most valuable work, a work deserving the support of all motorists whether members of the American Motor League or not. There are many towns in the country where members of the league do not reside, but where motorists are numerous. Such motorists should aid in the work whether they intend to become league members or not, as the work is of national importance and will be valuable to car owners in every state.

The best way for such work to be done and in fact the only way is for local motorists to look after their district and let the national body, in this case the American Motor League, organize and publish it.

AGENTS AND THE A. L. A. M.



WITHOUT doubt one of the most peculiar trade situations brought about by the advent of the Association of Licensed Automobile Manufacturers as an active organization with a well defined purpose

in the automobile industry, is the relation of automobile dealers to it. In many of its objects the A. L. A. M. has pursued a direct and effective course, productive of results.

For instance, it has pushed its litigation over the Selden patent vigorously, and it has also accomplished a great deal in lines of work which are for the benefit of its members as automobile manufacturers without regard to the original licensees' association. But in the establishment of its avowed definite policy relative to retail dealers it seems to have fallen far short of its activity in other lines.

It was proposed some time ago by the Association of Licensed Automobile Manufacturers that it should as strenuously push its campaign against unlicensed cars in the retail as in the manufacturing field. It there-

fore issued the ultimatum that dealers handling cars made by its members could not under any circumstances act also as agents for unlicensed cars, and avowed that once an agent had been given an A. L. A. M. line of cars, upon his acceptance of the above condition, the A. L. A. M. would see to it that his business course was limited to the straight and narrow path.

Just how well the A. L. A. M. has succeeded in this effort of its to segregate the sale of licensed and unlicensed cars is told by the numerous agencies in smaller cities handling both cars openly and, in larger cities, by the number of blind pigs, which are ostensibly independent agencies for unlicensed cars, but which are in reality annexes to licensed car stores. So far as this season is concerned the A. L. A. M. has not control of the situation. What it may do in the future is conjecture.

On the face of it it seems that it would be decidedly easy for a manufacturer belonging to the A. L. A. M. to force any or all of his agents to adhere strictly to the sale of licensed goods by threat of taking the agency or agencies away should the compact between the licensed dealers and the licensed makers be broken. But by a closer study of the situation it becomes apparent that even if the manufacturer is in possession of absolute proof of the fact that an agent is engaged in the sale of both licensed and unlicensed cars, he is not in the best position in the world to "slip it over" the agent.

Suppose, for instance, that the agency in question is in desirable selling territory, and that the manufacturer wishes to cater to this territory and establish for himself in it an enviable reputation. If early or in the middle of the season he spansks the agent by stopping the delivery of cars to him, or by taking the agency away from him, he does not do the agent any more harm than he does himself. Even if he does not overload himself with cars supposed to have been permanently sold, he at least ruins his chances in a good locality, putting off for a season or two the introductory work that would have been accomplished immediately had the agent been left alone.

The agent as a buyer and seller does not stand to lose as much, because his interests are not necessarily linked irrevocably to one machine and the advertising value of its name. Even if he be prevented temporarily from making profit, he cannot be caused to lose heavily. As soon as he picks up a new line he is in business again.

The manufacturer in the meantime has only the satisfaction of having taken away, at personal loss, an agency from a man who might have made him profit.

Candidly, it seems as though the only sure way in which the A. L. A. M. can make the agencies of this country stick to the sale of licensed automobiles is to stop the manufacture of unlicensed ones.

Briefly, it is up to the Selden patent.



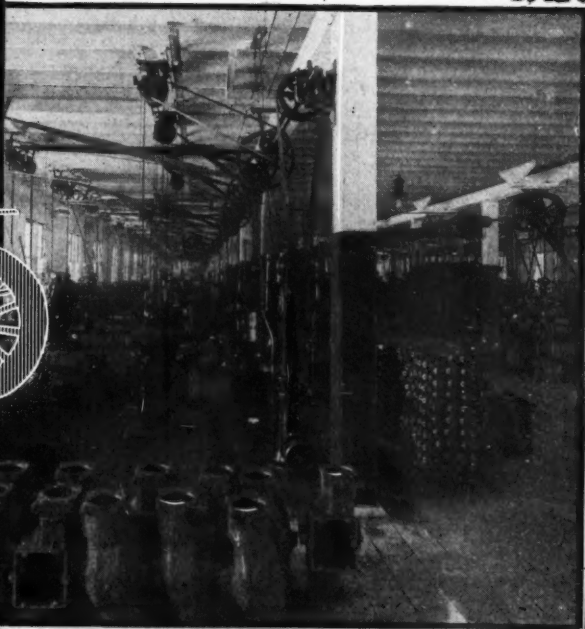
IT IS ABOUT TIME THIS HAPPENED



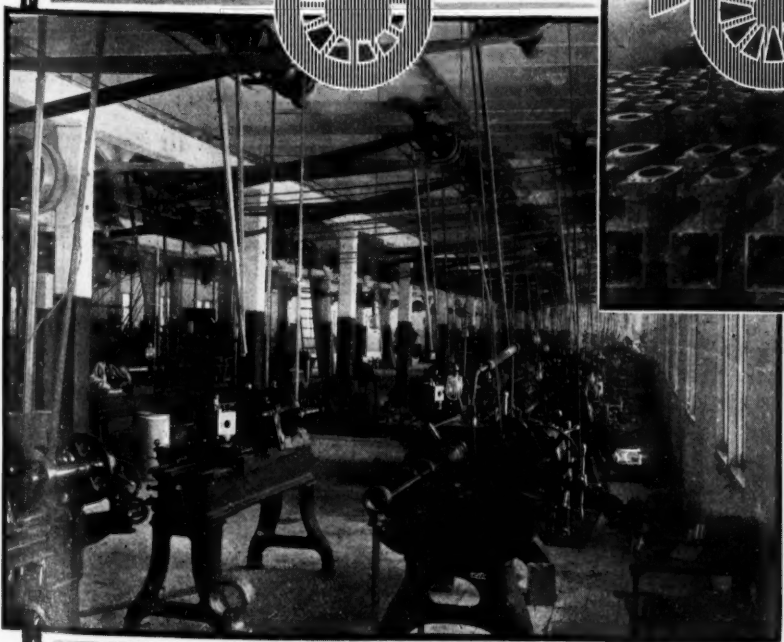
The Birthplace of the Reo



R. E. Olds



T. M. Wadley



METROPOLITAN RACE TALK



PREPARING BRIGHTON BEACH TRACK FOR THE OPENING MEET, MAY 6

New York, N. Y., April 24—National track championships are to be established by the American Automobile Association. Arrangements have been made by the association's racing board to hold the first national championship meet at the Morris Park track on Monday and Tuesday, July 3 and 4. The offer by Mr. Morris, president of the A. A. A., of the Morris Park course, made at the recent meeting of the A. A. A. board of directors, was referred to the special committee, consisting of Robert Lee Morrell, chairman of the racing board; George E. Farrington, treasurer and A. G. Batchelder, the new secretary, who will succeed C. H. Gillette on May 1.

The establishment of national track championship is a new and desirable departure, which will give track racing a standing as a recognized branch of the sport and add much to its importance and popularity. This move seems likely to have as its outcome the establishment of championships for the four recognized weight classes at all distances. As it will not be possible to decide all of them at a single tournament the natural inference would seem to be that the championships undetermined at the national meet will be distributed among various meets held throughout the country during the season.

The racing board meets again next Thursday. It is probable that this matter will receive consideration and reach a settlement.

Incidentally, in making the announcement of the meet the committee states frankly that the national organization desires a substantial fund with which to carry on the extensive work planned for this season. It says further:

"The A. A. A. plans for the future comprise the building up of a strong national body that will extend from coast to coast and contain in its membership all the clubs of the country, organized into state associations which will work for uniform and just legislation, agitate roads improvement, provide touring information for members and control racing in an impartial manner that will satisfy both the patrons of and the participants in the sport. The greater part of the fund obtained by the July 3-4 meet will be expended in the establishment of an active bureau for touring information."

The committee intends to make the meet the most notable ever held in this country, and the program will contain feature events of a decidedly novel character in which the leading amateur and professional drivers of the country will participate. Races will be provided for all classes of cars, and many of the contests will carry a championship title. An international event is being outlined that will contain the world's greatest drivers of high speed cars.

Two more entries have been made for the Vanderbilt cup. One is by Colonel E. H. R. Green, the Texas member of the racing board, who names a Franklin. The car was designed by John Wilkinson and has an eight-cylinder air-cooled engine rated at 60-horsepower, though its capabilities are said to be much higher. Its weight is reported to be 2,100 pounds. Another Franklin is being built at the Syracuse factory for Colonel Green's track racing stable, it being a light-weight model. The other nominator is Dr. Harold E. Thomas, who names his Locomobile, already a candidate for the American team in the Bennett race. The car is completed and has begun its road work. Joe Tracy is attending to its tuning up on the road.

O. J. Woodard, of the Diamond Rubber Co., told a MOTOR AGE man that Tracy is delighted with the car, and says that he can suggest no improvement though he has lain awake o' nights to think out changes or additions that might add to the machine's speed and effectiveness.

The racing committee of the A. C. A. is considering the question of the official try-outs of the candidates for the American team in the Bennett race. It is probable that cars will be inspected and tested by members of the committee at the homes of the entrants—Colonel Pope's at Toledo, W. T. Muir's at Lexington, Ky., and Dr. Harold E. Thomas's at Bridgeport. Under the rules of entry established by the committee the cars are to be ready for inspection and trial on May 1. The entrants must make affidavit that they have been finished two weeks, that they have been run 1,000 miles, that the motor has run 250 miles without stopping and that they have covered 40 miles on road or track within the hour.

Track racing meets in the metropolitan district on every Saturday and matinee holiday from May 6 to October 28 seem more assured. At a meeting of the managers of the three New York tracks an amicable distribution of duties was arranged whereby there will be nine meets at Morris Park, beginning May 20; eight meets at Brighton Beach, which opens on May 6, and eight meetings at the Empire City track, beginning on Memorial day. Each track receives a holiday, Empire City getting May 30, Morris Park taking July 4, and Labor day going to Brighton Beach.

Following are the dates for which application has been made by the secretaries of the three tracks:

May 6.....	Brighton Beach
May 20.....	Morris Park
May 30.....	Empire City
June 3.....	Brighton Beach
June 10.....	Morris Park
June 17.....	Empire City
June 24.....	Brighton Beach
July 4.....	Morris Park
July 8.....	Empire City
July 15.....	Morris Park
July 22.....	Empire City
July 29.....	Morris Park
August 5.....	Brighton Beach
August 12.....	Morris Park
August 19.....	Brighton Beach
August 26.....	Empire City
September 4.....	Brighton Beach
September 9.....	Morris Park
September 16.....	Empire City
September 23.....	Morris Park
September 30.....	Empire City
October 7.....	Brighton Beach
October 14.....	Morris Park
October 21.....	Empire City
October 28.....	Brighton Beach

The Brighton Beach Automobile Club has made known its program for its opening meet on May 6 and sent out its entry blanks. The events decided upon are as follows:

Gasoline stock car race, to qualify for the Coney Island handicap—Five heats, at 1 mile, as follows: First heat, cars of 9 horsepower and under; second heat, cars of 12 horsepower and under; third heat, cars of 20 horsepower and under; fourth heat, cars of 30 horsepower and under; fifth heat, cars of 40 horsepower and under. Prizes to heat winners. First and second cars in each heat to qualify. Cars to be regularly equipped. Catalogue stating horsepower to be filed with entry. The horsepower of winners and seconds may be protested. Horsepower of cars protested will be determined by the technical members of the racing board of the American Automobile Association.

Amateur race at 5 miles—Two prizes. Amateur as defined by the A. A. A. racing board.

Five-mile open race—Two prizes, choice of plate or cash to the total value of \$225; first prize, \$150; second prize, \$75.

Brighton Beach handicap at 5 miles, open, for the Brighton Beach cup, value—The Brighton Beach cup will become the property of the contestant winning the largest number of points in the Brighton Beach handicap in the series of meets on the Brighton Beach track during the season of 1905. First place in each race for this cup to count three points, second two points and third place one point. Prizes to the first and second cars in each race for the Brighton Beach cup.

Coney Island handicap at 5 miles—Two prizes; open to the first and second cars in each heat of the gasoline stock car race.

Five-mile race for middleweight class—Open to cars weighing under 1,432 pounds. Four entries or no race. Two prizes.

There will be special match races and speed trials. Among the latter will be the first appearance on a track of the "Lightning Bug," as the Louis S. Ross steamer, which won the Dewar trophy for the mile championship and scored a mile in 38 seconds and a competition mile in 41.3-5 seconds, is now called. Joe Nelson, well known as a cycle pace foreman, will be its driver. The entries will close on May 1 with John R. Eustis, racing secretary,

1534 Broadway, New York. The entrance fee is \$5 for each event.

Another millionaire racing enthusiast has made it known that he will compete in the metropolitan circuit and enter a car to join issue with the Thomas, Miller and Green flyers. The newcomer is a foreigner and none other than E. J. Conill, president of the Cuban International Automobile Racing Association, whose 60-horsepower Mercedes won the Havana cup in the great 160-kilometer race last winter. Senor Conill, however, says in a letter to Secretary Reeves of the Morris Park Motor Racing Association that he will have a new racing car and will use henceforth the Havana cup winner merely for touring. It is to be assumed, of course, that Carriaburru, who piloted his car in the Cuban race, will be the driver. Carriaburru cherishes an ambition to race Barney Oldfield, which Manager Reeves will satisfy providing Senor Conill will give his consent. The new car is undoubtedly the one he told the MOTOR AGE man at the Cuban meet that he would order for next year's contest for the Havana cup.

BOSTON'S MEMORIAL DAY

Boston, Mass., April 24—The racing committee of the Bay State Automobile Association is now busily making arrangements for the holding of its first race meet on Memorial day. The committee held several meetings during the past week, determining upon its list of officials, and likewise list of events. Chairman Lewis R. Speare feels satisfied that the committee has covered the ground well so that all classes of cars will be able to race. The list of events is as follows:

Ten-mile open, for the Boston Herald \$500 trophy. Won once by Herbert L. Bowden. Other prizes will be offered by the club.

Five-mile race for two-cylinder stock cars as per published catalogue, in full touring form, with mufflers. First prize, \$500 Moxie cup; second prize, \$75 cup.

Five-mile race for stock steamers, in full touring form. First prize, \$200 cup; second prize, \$50 cup.

Five-mile club championship. Open to members of organized clubs. First prize, \$250; second prize, \$100, cash or plate.

Five-mile time trials, all classes and powers.

One-mile time trials, all classes and powers.

Five-mile race for four-cylinder cars not exceeding 30 horsepower as advertised in catalogue, in full touring form, with muffler attached. First prize, \$250; second prize, \$100, cash or plate.

Five-mile free-for-all. First prize, \$250; second prize, \$100, cash or plate.

In arranging the list of events, the committee kept in mind the fact that it would be necessary to have more than one event in which might appear the "big" men and machines, several of whom have already promised to attend at this meet.

The entertainment committee of the club has arranged for the tendering of a complimentary dinner to Louis S. Ross as the winner of the Sir Thomas Dewar trophy at the B. A. A. next Saturday night. The trophy will then be presented to Mr. Ross by the personal representative of Sir Thomas Dewar, and by Mr. Ross turned over to the club for safe keeping.



CIRCUIT ALMOST READY

Work on the Auvergne Course for the Bennett Race Nearly Done —The Drivers Practice

Paris, France, April 17—The arrangements for the French elimination and Bennett cup races are being hurried as much as possible and the tourist who now goes over the race circuit and who was there about 2 months ago finds many changes and many improvements in the roads. In some sections of the Auvergne circuit the roads are in their final shape, but much work still remains to be done, especially in the widening of narrow stretches and the banking of sharp turns.

It has been decided by the officials of the Automobile Club of France that the club's grandstand will be erected at the place where the circuit and the road leading to Lasehamps join. This stand will be 220 yards long and will hold nearly 2,000 people. Other grandstands, seating all told from 25,000 to 35,000 people, will also be built. Special roads leading to the grandstands have been selected for the use of motor cars and bicycles and others for pedestrians and horse-drawn vehicles. Along the circuit 100 posts will be erected bearing information for the contestants and informing them of the approach to turns, villages and crossings.

At places where cars must slow down there will be blue flags, while at places where cars should stop entirely there will be posted a man with a yellow flag. On the day of each race no cars will be allowed on the circuit except those of the contestants after 1 o'clock in the morning. No one except the commissioners and the men who have charge of the various automobile and tire concerns will be permitted on the circuit. The contestants may race through towns and villages but will be urgently requested to slow down as much as possible in order to avoid accident to the public and themselves. In all localities through which the contestants pass the streets will be fenced on both sides. Foot bridges will be erected in all villages over the fenced roads but nobody will be permitted to stay on them to see the race.

In hamlets and in front of farms or isolated houses the road will be partially fenced on both sides. Wherever there is a fence or barrier there will be one or more gendarmes or soldiers to prevent people from crossing at the approach of a car. All along the roads the crowd will have to stand back of the line of trees and ditches. The ditches near curves and sharp turns will be filled to the level of the roads. A medical service will be organized and doctors will be stationed at many places along the circuit. All medical posts will be connected with one another by telephone and several motor cars will be at the disposal of the physicians.

The three bridges which will be erected at the railway crossings of Laqueille, Vauriat and Volvic will cost about \$50,000. Two of them will be 120 yards long each and the third 140 yards. Each bridge will be 18 feet wide.

Most of the drivers from European countries which will be represented in the cup race have now gone over the circuit. Some of them make a trip daily while others only cover a short distance each day. One of the most careful drivers is Henri Farman, who has

been seen repeatedly to start on a difficult road and after having gone over it to return and make the same trip again several times. He, as well as several other drivers, has gone over the roads on foot. Farman thinks it will not be possible to drive faster than at an average of 50 miles an hour. One driver has remarked that he does not believe the cup race will be run, as he fears accidents during the French eliminating race may prevent the running of the Bennett race.

The first accident since drivers have been testing their cars on the circuit happened a few days ago to Lancia, who was in one of the Fiat racers. At the village of Chez-Verdier his car skidded and fell 15 feet into a ravine. Neither the driver nor his mechanic was hurt, but the car was seriously damaged and had to be shipped back to the factory in Italy.

The drivers of the Austrian-made Mercedes cars have been selected, being Alexander Burton, the American sportsman, Werner and Braun.

At a meeting of the Automobile Club of Auvergne it was decided to arrange several important events to take place after the eliminating race, but before the Bennett cup race. Sunday, June 18, there will be a kilometer flying start and a mile standing start competition; Thursday, June 22, a flower parade in Royat and a parade in Clermond-Ferrand; Sunday, June 25, a touring competition, and Thursday, June 29, a hill-climbing contest. A challenge team race is also being planned. There will be organized two excursions, one from Clermond-Ferrand to Vichy and the other from Clermond-Ferrand to Puy.

The Automobile Club of Aix-les-Bains and the officials of that city have decided to promote a series of automobile events from June 20 to 28, for which \$10,000 in prizes are to be given. There will be a 3-day tourist competition, a speed competition for racing cars, a 2-day motor boat race meet and a gymkhana.

NICE WEEK OPENS

Nice, France, April 14—The annual week of Nice was inaugurated today with an endurance run for touring cars over a 46-mile circuit, starting and finishing here. The eleven cars which started were two 20-horsepower Pilains, a 35-horsepower Clement-Bayard, a 24-horsepower Berliet, a 60-horsepower Mercedes, a 10-horsepower Renault, an 18-horsepower Peugeot, a 16-horsepower Martini, a 24-horsepower Gobron-Brillie, a 12-horsepower De Dion-Bouton and a 24-horsepower Berliet.

At Quatre-Chemins, on the famous Turbie road, a hill-climbing contest was held, the distance being 500 meters—about 1-3 mile. The Mercedes easily took first place, making the ascent in 1:15 3-5, while the Peugeot was second, being 1 second slower. A Berliet was third. There were no accidents during the run. No awards will be made until the brake tests, starting and stopping competition, and other minor events have been held.



TOURING CARS TESTED

Endurance and Speed Contests Held in France—Honors Go to Berliet and Turcat-Mery

Paris, France, April 17—Two touring car competitions were held within the last few days, one in southern and the other in central France. In each a large number of competitors started and the country people showed great interest in the passing of the participants, encouraging them all along the line.

The first event was a reliability trial for the trophy offered by the Automobile Club of Forezien, and it was won by the Berliet from the Peugeot, by thirty points. There was over a score of starters in the 140-mile run, which started from Saint-Etienne and went through beautiful country, over good roads with hills, sharp turns and level stretches. Among the cars were several Peugeots, Berliets, Automotos, Pilains, Rochet-Schneiders, Mieussets and one each of the following: Darracq, De Dion-Bouton, Gobron-Brillie, Radia, Mors, Svelte, Cottureau, De Dietrich and Clement-Bayard.

Speed was the least considered, while the greatest number of points were allowed for regularity of travel, hill-climbing ability, brake efficiency, comfort and accessibility. Twelve cars covered the course without a stop caused by accident. A Peugeot would very likely have won the trophy had it not been driven several miles over the wrong road, which caused it to be disqualified. A 22-horsepower Berliet, driven by Plattier, won by scoring 1,345 points; the 24-horsepower Peugeot, driven by Branch, scored 1,315 points; a 20-horsepower Pilain, driven by Cote, was third, with 1,270 points; the fourth place was won by a 32-horsepower Peugeot, driven by Dietz, which scored 1,255 points, and a 24-horsepower De Dietrich and a 20-horsepower Pilain tied for fifth place.

The second race, an annual event, run for the first time in 1900, was for the Provincial cup. It is a team race for automobile clubs of Southern France. The Automobile Club of Nice had won the trophy twice and was favorite this year, having entered a Panhard-Levasor, a Mercedes and a Renault, but on account of the recent bodymakers' strike the big cars were not ready and substitutes of less power had to be driven by two of the contestants, while the third did not start. Nice lost the cup this year to Marseilles, the automobile club of that city having entered a 40-horsepower Turcat-Mery, driven by Rougier; a 20-horsepower Berliet, driven by Bablot, and a 40-horsepower De Dietrich, driven by Nemorin.

The race was run on a circuit which started at Nice and passed through Cagnes, Grasse, Vence, Nice, Sospel and Cap-Martin. The distance was about 92 miles and included several steep hills, but generally was of excellent roads. Before the start of this race the cars participated in a kilometer standing start competition which was held on the Promenade des Anglais, in Nice. The 20-horsepower Berliet proved to be the fastest in this test, covering the kilometer in 59 seconds, while the 40-horsepower Turcat-Mery required 1-5 second and the 40-horsepower De Dietrich 4-5 second more to go the distance.

In the road event the Turcat-Mery was the

fastest, covering the 92 miles in 3 hours 40 minutes, an average of 25 miles an hour. The Berliet came in 15 minutes and the De Dietrich 36 minutes after the winner.

A race for light cars and motor cycles was run at the same time, but it did not prove so interesting, although the two 10-horsepower De Dion-Bouton cars finished less than $\frac{3}{4}$ of an hour behind the big Turcat-Mery car.

AERIAL FLIGHTS AT MORRIS PARK

New York, N. Y., April 24—Aeronaut Leo Stevens has written Dave Hennen Morris, president of the Morris Park Motor Racing Club, asking him whether the report be true that he will furnish facilities at the new automobile course for aerial flights and experiments and organize an aero club, in the place of the Paris club, as an adjunct to the motor racing club. Stevens says that one reason for his inquiry is that Stewart Reid, a millionaire companion of his, and himself intend making a journey of 200 or 300 miles the latter part of May and are looking for a place for experiments and whence to make their flight.

Mr. Morris had the following to say by way of comment on the letter:

"The automobilists will receive our first consideration. Several of our members, however, notably W. Gould Brokaw, are much interested in air ship sailing as a sport, and would doubtless welcome a plant available for flights and experiments. The air ship is just as much a cognate sport of automobiling as is motor boating, and Morris Park, with its vast open fields and ample buildings, will gladly be placed by us at the service of the aeronauts, should sufficient general interest in the sport be developed here."

That the matter has gone further than mere talk is indicated by a report today that several well known automobilists have agreed to form the Aero Club and in their names articles of incorporation have been forwarded to the secretary of state at Albany. The list of incorporators includes David Hennen Morris, president of the Automobile Club of America; Colgate Hoyt, George B. Tangeman, Augustus Post, William Hawley, Peter Cooper Hewitt and H. W. Hedge.

DENY SPEEDWAY RUMOR

New York, N. Y., April 24—Neither W. K. Vanderbilt, Jr., nor Secretary Butler, of the A. C. A., knows aught of a great 150 feet wide automobile speedway said, according to a yellow story printed yesterday and reiterated today, to be projected between Forest Hill and Lake Success and to terminate at Mr. Vanderbilt's Long Island estate. The story has it that only the getting of a right of way through Cypress Hills Cemetery stands in the way of the accomplishment of the project. Mr. Butler denies that the speedway referred to has any connection with any of the speedway projects now said to be under consideration by A. C. A. members.

ANOTHER N. A. A. M. OBJECT

New York, N. Y., April 24—The Association of Licensed Automobile Manufacturers has established a traffic department. J. S. Marvin, a railroad transportation man of experience, formerly employed in a similar capacity by the Pope Mfg. Co., is to be in charge. The department will make it its business to facilitate transportation of the product of the members to route shipments, and to secure uniform and advantageous express and freight rates.

TWIN CITIES AWAKENED

Northwestern Club Men More Than Anxious To Make the Western Tour Howling Success

St. Paul, Minn., April 24—"Welcome to the Twin Cities" is the cry which has gone out from St. Paul to the western automobile world during the past 2 weeks; and as a result of the efforts of the St. Paul Automobile Club, 1,000 visiting automobilists are expected to invade St. Paul and Minneapolis in July.

The awakening of St. Paul has been complete. Although the city has not boasted an organization until the opening of the present season, the leaders in the development of the game have already accomplished wonderful things. Four weeks ago several of the most prominent members of the St. Paul Automobile Club started out to capture the Glidden touring cup run of the American Automobile Association. This they failed to do, but after a short tour of the west they were able to announce that the Twin Cities would be the terminus of a western run, to be participated in by cars from Chicago, St. Louis, Omaha, Kansas City, and all the other principal western cities.

Great plans for entertaining the visiting tourists are already under way. Acting on the suggestion of the automobile club, the St. Paul Commercial Club has taken immediate action and offered \$1,500 to assist in the entertainment of the visitors. Minneapolis has come to the front at the invitation of its St. Paul fellow automobilists and the affair will be made distinctly a Twin City reception, with each city endeavoring to outdo the other in its welcome to the survivors of the run.

B. A. Ledy and George C. Knocke were the committee which visited Chicago to make arrangements for the run. They returned a little over a week ago, and the St. Paul club invited the members of the Minneapolis club to a smoker last Friday, when the report of the committee was made.

The idea has taken like wildfire here and both cities are now wrapped up in the plans for the week when the visiting automobilists will be here. It is proposed to arrange a week's entertainment which will leave nothing to be desired. There will be public receptions in each city, a race meet and a parade with the visiting cars as the feature. Excursions are being planned which will give the visitors a chance to see the beauties of the country surrounding the Twin Cities. Lake Minnetonka will be the objective point one day and White Bear and other lake resorts on others. A telegram was received Friday by Mr. Ledy from President Ira M. Cobe of the Chicago Automobile Club, and John Farson of the Illinois State Automobile Association, as follows: "We accept the St. Paul Automobile Club's proposition, and the tour will be made under the auspices of the Chicago Automobile Club."

It is proposed to have the majority of the machines assemble in Chicago July 7. Five days will be allowed for the low-powered cars to make the run, while the big machines will be given 4 days. The route will be through Rockford, Freeport, Dubuque, Independence, Cresco, Austin, Owatonna, Faribault, and thence to St. Paul. The tourists are expected to reach St. Paul July 11.

It is intended to time the cars so that they will meet at Faribault, and proceed in a body to St. Paul. A western delegation, from Montana, and taking in the Dakotas and western Minnesota is expected to join the southern tourists. A delegation from Duluth will also participate. In addition, a bunch is expected to come in over a route from Omaha and Kansas City. The Montana delegation will come by way of Fergus Falls and St. Cloud.

It is proposed to have at least fifty expert machinists and repairmen stationed along the route from Chicago to St. Paul, where they can be of most service to crippled cars.

COLLEGIAN HILL CLIMB

Boston, Mass., April 24—The first motor cycle event of the season in the east was the hill-climbing contest held last Friday on Commonwealth avenue, under the auspices of the Harvard University Motor Cycle Club. Fine weather attracted a large crowd. In the first event, for stock machines weighing not over 110 pounds, Charles Gustafson, of Springfield, on an Indian, made the best time by going up the hill in 22.5 seconds, or 2.5 seconds better than C. E. Erickson, of Waltham, riding a Metz, and 2.5 seconds faster than H. Ernest Rogers, of Brookline, who was on an Indian. The climb for Harvard students was closer, although the University men did not go as fast as the other contestants. L. E. French, from Amherst, on a Metz, won, his time being 25.4 seconds, while R. E. Athorpe, of Milton, was second on a Marsh, in 26.3 seconds. H. G. Hawes, of Cambridge, on a Metz, was third, in 27 seconds. The fastest ascent of the day was made by E. H. Rogers, who won the third event, a free-for-all, riding a two-cylinder Indian. He climbed the hill in 18.5 seconds, beating thirteen contestants. Second honors were won by Oscar Hedstrom, of Springfield, who also rode an Indian and whose time was 19 seconds. E. B. Belcher, of West Medfield, on a Curtis, was third, in 19.5 seconds.

RIOT AT FAKE MEET

New York, N. Y., April 24—A fake automobile race meet brought about a riot at the Clifton race track over in Jersey yesterday. When the advertised "stars" and "record breakers" failed to make their appearance a crowd of 2,000 spectators became a howling mob, which stormed the box office, set fire to the grand stand, tore down several hundred feet of fence and pummeled several men alleged to be behind the "fake." The police took into custody one G. W. Hamilton, general manager of the International Automobile Association, of New York, the name under which the meet was promoted, on a charge of obtaining money under false pretenses. Hamilton claimed he had engaged the drivers advertised in good faith and said he could not account for their non-appearance.

All the week the Paterson, Passaic, Clifton and countryside fences had been placarded with posters announcing the appearance of "Daredevil" Hunter in the "White Ghost," record for one mile, 37½ seconds; "Marvellous" Hunter in his "Blue Devil," record for one mile, 36½ seconds, and "Mile a Minute" Johnston, who was to try to break the world's record for one mile. An auto parade of 150 machines was also advertised to take place before the races began.

ACTIVE WORK STARTED

A. M. C. M. A. Establishes Offices in Chicago and Appoints Roger B. McMullen Manager

Chicago, Ill., April 26—A meeting of the directors of the American Motor Car Manufacturers' Association was held this afternoon in room 828, Marquette building, the offices of the association having been removed from Detroit this week. The meeting was attended by Roger B. McMullen, of Chicago, the newly appointed general manager; James Couzens, of the Ford Motor Co., Detroit; A. C. Newby, of the National Motor Vehicle Co., Indianapolis; J. B. Bartholomew, of the Bartholomew Co., Peoria, Ill., and William Mitchell Lewis, of the Mitchell Motor Car Co., Racine, Wis.

Several applications for membership were received. The association retained H. H. Bliss in charge of its patent bureau. The general manager and committee of management have made considerable progress in connection with the Chicago and New York show situation and announce that the association will be represented as an association at automobile shows in both of these cities. No definite statement will be made now. The next meeting of the directors will be held in New York, May 26.

WANT TO CROSS CONTINENT

Detroit, Mich., April 24—Here is a chance for volunteers who want to make a cross-continent run at the expense of some one else.

The Olds Motor works has decided to hold a cross-continent race all by itself and it has been decided to send two Oldsmobiles of the standard runabout pattern from New York to the Lewis and Clark exposition in Portland. The start is to be made from New York May 8 and it is expected that the two cars will be in Portland in time for the good roads convention in that city. The trip is to be made in the interest of good roads—and the Olds.

The company has issued an open invitation to volunteers who will make the trip. Two men will be selected from those who volunteer. With each man will go an expert mechanic and the cars and all expenses will be furnished by the company. The start will be made from New York and the first man to reach Portland will receive \$1,000 in gold. The second man, upon his arrival, will be presented with the machine which he has driven.

There is much local interest in the proposed contest. There never has been an ocean-to-ocean race and it is expected that the contest will attract widespread attention, not only from automobile men but also from sportsmen in general.

IN THE MAINE WOODS

Portland, Me., April 22—The prospects for a big automobile season in Maine during the present year are of the brightest. If the other industries carried on in the state had one-half the roscate appearance that this has, the promoters of them might well feel satisfied.

Like everything else that Maine has been privileged to enjoy, automobiling has been slow in getting a foothold in Portland and vicinity. But if it has been slow, it has been sure, for nothing could now be more certain than the big business which will be done in

every city in the state before the present year is over.

It is, of course, a little early to tell how many cars will be sold in the state, but it is safe to say the number of sales will be much larger than in 1904, when a record-breaking business was done.

During the coming summer there will be more visiting automobilists come into Maine than have ever come before. Though the woods may not be all that could be desired, Maine scenery is more than enough to compensate them for coming. They will find the roads somewhat improved, for the people of the state are at last awakening, and they will find supply stations scattered all through the country.

All in all, there is every indication that 1905 for the automobilist and the automobile will be the greatest year Maine has ever known.

FATAL GARAGE EXPLOSION

Washington, D. C., April 24—As the result of the explosion of a gasoline engine in the big garage of the United States Garage Co., in the northeast section of the city on the evening of April 20, the engineer, J. J. Ball, was killed, his assistant, Martin Fields, was seriously injured, and the garage was practically wrecked, a loss of more than \$2,000.

The gasoline engine, which was of small horsepower, was used to generate electricity for charging the batteries of the electric wagons of the United States Express Co. At the time of the accident Ball and Fields were in the engine room, the former being engaged in fixing some part of the machinery that was out of order. One side of the brick wall of the engine room was blown in, bringing down a 50-foot smokestack, and causing the skylights to break into thousands of small pieces. Ball was covered with the debris and when extricated it was found that his skull was crushed, several ribs were broken and the upper part of his body badly scalded. Life was extinct and it is presumed he was killed instantly. The district inspectors do not blame the explosion upon the gasoline engine, but claim it occurred in the pit beneath the engine, into which the exhaust was discharged. They advance the theory that the pit was filled with gas and ignited.

TOURISTS WIN WAGER

Chicago, Ill., April 24—Dr. J. F. Valentine, E. C. Largey and J. W. Carton of New York, who left the metropolis April 11 in a White Saturday. A few hours after their arrival Dr. Valentine started back for New York, per railway, arriving four hours ahead of the time stipulated in order to win a wager, the conditions of which had been that the motorists were to drive the automobile to Chicago and one of them to be back in New York within 13 days from the time of departure.

As reported in last week's MOTOR AGE, the tourists reached Buffalo April 18. From this city to Cleveland they had the company of John S. Rowe, of Savannah, Ga., who also drove a White steamer. There were no accidents during the journey to Chicago, and the only complaint the motorists made was on the condition of some of the roads. One day they found the highways so muddy and slippery that they could only travel 33 miles. All told about 1,100 miles were covered. Catron and Largey will drive the car back to New York. Diamond tires carried New York air into Chicago.

AFFAIRS OF AUTOMOBILE CLUB MEN

Healthy Northwest—The St. Paul Automobile Club now has 285 members.

Limit Neared—The membership of the Automobile Club of Pittsburg has nearly reached the 300 mark, which has been set as a limit.

Chicago To Parade Twice—The annual parade in Chicago is scheduled for May 13, according to the plans of the Chicago Automobile Club. There is also scheduled a parade on Decoration day as a feature of the 3 days of racing winding up at Washington park that day.

Compromise Advised—At a meeting of the Milwaukee Automobile Club, held last Thursday, the topic of the evening was legislation and James T. Drought, chairman of the legislation committee, advised the members that in order to secure the passage of satisfactory laws by the legislature compromise on some points should be made.

Pittsburg Program—The Automobile Club of Pittsburg expects to hold a street parade in May or June. An effort will be made to get out every member of the club. There has also been appointed a race committee, of which George E. Turner is chairman, to outline plans for a hill-climbing contest on Heberton hill in May and a race meet at Brunot's Island in June.

New Western New York Club—An automobile club was formed in Olean, N. Y., last week. It is the Cattaraugus County Automobile Club and has thirty charter members. Dr. A. E. Smith of Olean is president; C. R. Gibson of Salamanca, vice-president; W. F. Persons of Delevan, secretary; Clare Willard of Allegany, treasurer, and Albert T. Fancher of Salamanca, D. P. Ray of Olean and Charles Smith of Portville, governors.

Albany Club To Tour—The Albany Automobile Club, of Albany, N. Y., is promoting a 5-day tour to be held June 16 to 20. On the first day the tourists will drive to Poughkeepsie, N. Y., 80 miles from Albany. The next day they will go to New York, a run of 84 miles. From the metropolis to New Haven, Conn., 79 miles, is the run scheduled for the third day. The shortest day's journey will be that from New Haven to Springfield, Mass., 70 miles, June 19. The return run will be the longest of the tour, the distance from Springfield to Albany being 102 miles. Thus, all told, the motorists will cover 415 miles during the 5 days. Automobilists from other cities are invited to participate in the tour.

Good Roads Prime Necessity—Governor Cummins, of Iowa, was the principal speaker at the first annual dinner of the Iowa Automobile Club, which was held in Des Moines last week. The governor's subject was "The state's relation to the county in road building." In the course of his talk the governor said that one of the most important problems in all countries is that of good roads and that the better the highways are the richer the country. Federal aid is not favored by the governor in road building. He expressed the belief that it would lead to appropriation controversies and squabbles. He urged instead state road departments and appropriations. The other speakers at the banquet were: Mayor George W. Mattern, President George H. Hippee, Secretary F. L. Kern,

Frank T. Morris, of the board of road supervisors, J. A. Garver, E. A. Nye, Harveyingham, W. S. Donahey and Lafe Young.

Another Small Town Club—The Medina Automobile Club has been organized in Medina, N. Y.. Harry Robbins is president, Frederick C. Babcock, secretary, and Le Grand S. Whedon, treasurer.

Jersey Election—The following is the regular ticket nominated for the annual election of the New Jersey Automobile and Motor Club held in Newark Monday: For president, Dr. James R. English; vice-president, J. H. Wood; treasurer, James C. Coleman; trustees, Frederick R. Pratt, Dr. H. Crittenden Harris and W. I. Fisk.

Family Affair—W. F. Smith, manager of the Philadelphia branch of Thomas B. Jeffery & Co., has supplemented his branch business in Millville, N. J., by organizing a club in that town. In view of the fact that every member of the new organization bought his machine from Mr. Smith, it has been decided to name it the Rambler Automobile Club of Millville.

Can Join for One "Bone"—The Bloomington Automobile Association, of Bloomington, Ill., held its annual meeting last week, electing S. P. Irwin, president; Charles Cooper, vice-president; Henry Thobro, secretary, and Charles Dietz, treasurer. W. K. Bracken, E. W. Martens, Walter Johnson, William Courey, John Beck and the officers form the board of directors. The organization has now twenty members, and in order to encourage others to join, the membership fee was reduced to \$1 for the next 6 months.

Phillies Want State Body—The Automobile Club of Philadelphia is at the head of a movement to consolidate all the automobile organizations of the state of Pennsylvania into one association. Hitherto the club, as the representative body of the state, has been compelled to shoulder all the responsibility and do the bulk of the actual work when legislation favorable to automobilists was sought at the hands of the legislature, or inimical measures opposed. Not only will all existing clubs be amalgamated, but new clubs will be organized in those towns where automobilists are in sufficient numbers to warrant such a course, the idea being to make all motor car owners in the state a unit when occasion arises for taking action to secure their rights. The details of the proposed organization are being prepared, and will be announced in circular form in a short time. A copy of this circular will be sent to every unattached automobilist in the state. The club, at its regular board meeting last Wednesday, adopted the A. A. A. resolution requesting members to refrain from paying the fines of chauffeurs who may be arrested for exceeding the speed limit while driving cars belonging to their employers during the latter's absence. The club's committee on tours and runs, is making an exhaustive study of the various hills within easy distance of the city in an endeavor to secure an ideal course for the hill-climbing contest which is scheduled for next month. The committee has already decided that each car must carry its full touring complement of passengers during the contest and that a standing start shall be obligatory. On ac-

count of the law-breaking possibilities of the competition the committee is in search of a hill which cannot be negotiated in less than the legal limit of a mile in 3 minutes.

Here's Hoping—At a recent meeting of the Automobile Club of Maryland, which has its headquarters in Baltimore, resolutions were passed and sent to the mayor urging that several of the principal thoroughfares be repaired without delay.

John Loving-Cupped—At the monthly meeting of the board of directors of the Chicago Automobile Club, April 21, former president John Farson was presented by the directors with a loving cup in appreciation of his services as president of the club and as a token of fellowship.

Peoria Election—H. B. Onken was elected president of the Peoria Automobile Club, of Peoria, Ill., at the annual meeting last week. William Turnbull was elected vice-president; R. A. Whitney, secretary, and William H. Reese, treasurer. The officers, with J. B. Bartholomew, M. E. Magruder, A. E. Anderson and S. K. Hatfield, form the board of directors.

North Jersey Election—At the election of officers of the North Jersey Automobile Club, held last week in Paterson, N. J., G. A. Post was elected president; F. R. Reynolds, first vice-president; Frank Van Cleve, second vice-president; Robert Beattie, Jr., treasurer and secretary; Charles Frost, captain, and C. Horandt, lieutenant. The governors are Joseph Sharpe, E. T. Bell, Jr., C. D. Cooke and W. H. Fletcher.

Invite 2,500 Owners—The New York Motor Club committee sent out Tuesday to 2,500 owners in the metropolitan district invitations to contribute their cars for the transportation of the children on Orphans' Day, June 7. It is expected that each car will carry from four to six orphans. Each child will wear a badge of a color distinctive of his asylum bearing a number corresponding with that of the car that carries him. The driver or attendant of each car will be given boxes of luncheon at the start, which will be eaten on arrival at the Coney Island beach. The expenses of the run will amount to \$1,000. These will be met by an equal subscription of the members.

Bean Eaters Scorch—The Massachusetts Automobile Club held its first run of the season last Wednesday going from Boston to Providence, as the guest of the Rhode Island Automobile Club. Wednesday was Patriots' day, which has heretofore witnessed the hill-climbing contest of the Boston club, but this year for various reasons a club run was substituted. Some half hundred of the members made the run to Providence, and arriving there were royally entertained at luncheon by the Rhode Islanders. The trip both ways was made in rapid order by many of the members and more than one little race was indulged in; in fact, the run partook more of a road race than anything else. W. J. Foss, with his Pope-Toledo made the trip from Forest Hills to Providence in 1 hour 13 minutes, while A. R. Bangs, in his Franklin, made the trip from the Crown hotel in Providence to Boylston street in Boston in 1 hour 20 minutes, the distance being 17

miles. Harlan W. Whipple was out with his Peerless, entertaining the chief of police of Andover, and also made rapid time.

Aquatically Bent—The second club run of the New York Motor Club is set for next Sunday. It will be to City Island in the sound, where arrangements have been made for yachting and boating excursions and a shore dinner.

Mormons' Orphans' Day—Orphans' day was celebrated in Salt Lake City, Utah, last week. Eighteen cars belonging to members of the Salt Lake Automobile Club took out the children of several orphans' institutions for a ride of several hours in the afternoon.

Seek Friendly Spirit—A circular letter was recently issued by the Duluth Automobile Club, of Duluth, Minn., to its members, urging them to observe the automobile ordinances and to be as friendly as possible with the farmers. The members are also urged not to "knock" one another's machines and to be always ready to help one another in case of accident.

Prominent Canucks Talk—Prominent men of Canada were guests at the second annual dinner of the Toronto Automobile Club, which was held in Toronto recently. A. W. Campbell, deputy minister of public works, was the principal speaker. He talked about the good roads movement in the province of Ontario. He said that out of \$750,000 which had been spent during the last 3 years in the province, the government's share was \$300,000. Nearly 1,650 miles of roads have been improved and now plans are being perfected to build a road from Buffalo to Hamilton, Toronto and Lake Simcoe. Other speakers were J. W. St. John, speaker of the Ontario parliament;

S. Wilison, Noll Marshal, M. C. Ellis, G. H. Gooderham, T. A. Russell, J. J. Main, Edward Gurney and H. C. McLeod.

Here's the A. O. A. K. C.—A score of motorists and others interested in motoring met in Rockland, Me., a few days ago and made preliminary arrangements for the organization of the Automobile Owners' Association of Knox County.

Hoosiers Elect Officers—April 19 was election day for the Automobile Club of Indiana, whose headquarters are in Indianapolis. It elected William Fortune president; A. A. Gay, vice-president, and R. A. Brown, secretary and treasurer. The officers and Carl Fisher, Howard Mammon, F. M. Ayres, John Perrin, G. E. Varney and H. O. Smith form the board of directors. It was decided that the club should become a member of the American Automobile Association and an application for membership will be made. A special dinner will be given next month with Winthrop E. Searritt and James B. Dill, of New York, as guests of the club.

Many Officials—Indications point to a great turnout of motor cars next Saturday on the occasion of the second annual parade in New York of the Automobile Club of America. The invitations, which have been sent broadcast, are meeting with very general acceptance. The guests' division will be a large one and it will require not far from fifty cars to carry the borough presidents, state senators, park commissioners, aldermen, magistrates and other city officials who will take the ride with the automobilists. These will assemble at the Hotel Lafayette-Brevoort near the start at Washington square and there be entertained at luncheon. Word has gone

forth that women will be welcomed in the parade. Accordingly participants are preparing to have the fair sex well represented among their guests.

Vaudeville and Segars—The vaudeville smoker which was to have wound up the weekly club nights of the A. C. A. and was scheduled to take place last week, was postponed until Tuesday of this week, when it was pulled off successfully.

Highway Cause Parade—In connection with the good roads convention to be held in Aurora, Ill., May 3, the Aurora Automobile Club is arranging a parade. The club has about fifty members, and most of them are expected to be on hand with their cars.

Maryland Season Open—The first run of the season of the Automobile Club of Maryland, of Baltimore, took place last week. From forty to fifty owners had promised to start, but at the time of departure for Westminster, the destination, only eight cars were on hand. The run was a pleasant one.

Pittsburg's Orphans' Day—On June 7 the Automobile Club of Pittsburg plans to give Pittsburg's orphans as genuine a holiday as any other orphans who are the beneficiaries of the general celebration of Orphans' day. Secretary W. Linford Smith has outlined plans for the outing and will submit them at a special meeting of the club soon. Club men will lend their automobiles and assist in taking the hundreds of orphans in the institutions of Pittsburg to some good picnic ground. Mrs. Letitia Holmes, secretary of the Pittsburg and Allegheny Orphans' Asylum, and other officials of the institution have been asked to aid in arranging the details of the holiday.

MILESTONES ON THE HIGHWAY OF SPEED

European Motor Boat Races—Thirty-seven important motor boat races are scheduled to be run this year in Europe.

Country Road Races—Automobile owners of Aurora, Ill., and vicinity contemplate holding several road races this season, one of which will be from Aurora to Batavia and return and another to Yorkville or Naperville and return.

After Chicago-New York Record—A. G. Schmidt of Chicago is arranging for an attempt at an early date to beat the Chicago-New York record now held by Bert Holcomb and the Columbia. Schmidt was a former holder of the record, having beaten the original record between the two cities established by Holcomb, who regained it last year. On his last record ride, a partnership affair between himself and Jerome A. Ellis, Schmidt drove an Apperson. His mount in the coming attempt will be a 50-horsepower Bayard-Clement.

For Local Drivers—Efforts are being made to hold a race meeting at Charter Oak park, Hartford, Conn., on Memorial day. The fiasco of last year it is hoped will not be repeated, and it is expected that several good matches will be arranged. Since there is so much rivalry between Ebenezer Hill, Jr., of Norwalk and A. L. Riker of Bridgeport, it is the intention of the promoters to offer a special cup for a match race, the distance and terms to be announced later. It is not expected that any outside attractions will be

secured, the experience with "appearance money" stars in Hartford being sad.

More Beach Races Planned—A committee appointed by the board of trade of St. Augustine, Fla., to investigate the possibilities of an automobile race meet on the beach and a motor boat race meet in the bay, has reported favorably.

Professionals Barred—At a meeting of a committee of the Seattle Automobile Club, held in Seattle, Wash., last week, it was decided that no professional drivers of reputation would be invited to compete at the race meet now being arranged. Only members of the local club and of recognized clubs will be permitted to enter and they must drive their cars themselves.

Betting on the Bennett—Betting books on the French eliminating trials have been opened in Paris. According to the latest mail advices the odds were as follows: Thery, Richard-Braiser, 4 to 1; Gabriel, de Dietrich, 5 to 1; Girardot, Charron-Girardot-Voigt, 6 to 1; A. Clement, Bayard-Clement, 7 to 1; Heath, Panhard-Levassor, 7 to 1; H. Farman, Panhard-Levassor, 8 to 1; Teste, Panhard-Levassor, 8 to 1; Rougler, de Dietrich, 12 to 1; Edmond, Renault freres, 12 to 1; Caillois, Richard-Brasier, 12 to 1; Duray, de Dietrich, 14 to 1; Rigolly, Gobron, 14 to 1; Stead, Richard-Brasier, 16 to 1; Hanriot, Bayard-Clement, 16 to 1; Bernin, Renault freres, 20 to 1; Hemery, Darracq, 25 to 1; Wagner, Darracq, 30 to 1; Sisiz, Renault freres, 30 to 1; Ville-

main, Bayard-Clement, 30 to 1; De la Touloubre, Darracq, 50 to 1; Lapertot, Automoto, 100 to 1.

Race Club in Michigan—An automobile racing association is being planned by automobilists of Grand Rapids, Mich. W. S. Daniels is at the head of the movement, which intends to promote three race meets this season.

Western Fourth of July Meets—The driving track of Port Huron, Mich., has been leased for July 4 by local motorists who expect to conduct a race meet, the first one in that section of Michigan. It is possible that the Columbus Automobile Club, of Columbus, O., will also hold a race meet July 4.

Interested in Vanderbilt Cup Race—L'Auto, of Paris, has decided to charter a transatlantic steamer to convey French sportsmen to New York for the Vanderbilt cup race. In speaking of the American race the French daily says that the Vanderbilt race will possibly be the most important race of the year, not even excluding the Bennett cup race.

British Motor Cycle Race—The British eliminating race for positions on the British international motor cycle race team will be at the same time a competition for the Motor cup. The race will be run on the Isle of Man, on a circuit of 54½ miles, which will be covered three times. There will be no controls and the winner will be the rider making the fastest time. Eighteen motor cycles, representing nine different makes, have thus far been entered.



SUCH IS THE MOTOR LAW

The Automobile Club of Pittsburgh has decided to make a test case of the city ordinance which was passed recently and which provides a license fee of \$6 for one-seat motor cars and of \$10 for cars of greater capacity. The automobilists claim that they are already paying the city \$3 a year according to the old state law which existed when the city ordinance was passed. Attorney J. Francis Burke has been retained by the club to look after the interests of the automobilists and he has conferred with City Treasurer John F. Steel and with Chief Ordinance Officer Murray Livingston. It was decided among them to take the matter to the courts. Alvin P. Shoemaker, a prominent member of the automobile club, was the first motorist arrested since the decision of the club and he was held in \$300 bail. In order to be better able to arrest violators of the speed ordinance, the police department will use a motor car in which will be two officers beside the driver. The city ordinance provides 6 miles an hour in the down-town districts and 15 miles an hour on the boulevards.

MOTORISTS COMPLIMENTED

In his annual report James N. Knipe, chairman of the police committee of Lower Merion township, Pa., where so many Philadelphia automobilists have fallen into the clutches of the local constables, compliments motor vehicle operators generally on the improvement in the observance of the speed laws. He calls attention to the fact that there were but twenty-three arrests for violation thereof during the year ending March 1. This state of affairs was largely due to the excellent work of the Automobile Club of Philadelphia, which through the public prints and otherwise kept the Quaker motorists apprised of the movements of the "Mad Mullen" and his cohorts of stop-watchmen.

STREET RESERVATIONS

The legislature of Illinois last Thursday ordered the pending automobile ordinance to a third reading, after an all-day debate, during which many amendments were presented by various legislators. One of them suggested that automobiles be geared so that the speed of the car could not be greater than 20 miles an hour. There was a great deal of confusion during the standing vote and the amendment was finally lost by a vote of sixty-one to fifty-nine. An amendment providing that in cities and villages streets may be set aside for the exclusive use of horse-drawn vehicles was passed.

NEW LOS ANGELES LAW

A new city ordinance will go into effect in Los Angeles, Cal., May 17. It provides that within a certain area cars must not be driven at a greater rate of speed than 10 miles an hour. In other sections of the city a speed of 15 miles an hour is permitted. At crossings, curves and upon bridges the speed must be reduced to 4 miles an hour.

WILL PLAY THE RED

Owing to a mistake on the part of the manufacturer of the 1905 St. Louis automobile license, St. Louis motorists are now being put to considerable inconvenience. It seems the manufacturer was instructed to make the enameled license tags in red and white so

that the 1905 license could be readily distinguished from that of last year, which was in blue and white, but that he took it upon himself to suppose a mistake had been made in writing the order, and made the numbers the same as last year. The city claims that several persons have changed the final figures of last year's numbers instead of buying a new license and for this reason has called in all the blue tags that were issued to some 500 motorists.

ALDERMAN'S DAUGHTER EXEMPT

For several weeks the mounted policemen of Syracuse have been looking for some automobilist who exceeded the speed limit. They wanted to make an example of him and take him to the police station. Their first attempt had rather a laughable result. Mr. and Mrs. Simon Silverman, of New York, who are visiting there, rented a machine at a local garage and started out for a ride. While going up the Bellevue avenue hill it was the opinion of the bicycle policeman that they were exceeding the legal limit of 10 miles an hour. He soon overhauled the machine.

"I guess you'll have to come with me," said the copper, as he clambered into the seat."

Then Mrs. Silverman explained that she was the daughter of Alderman George Freeman of Syracuse and the policeman immediately felt his feet become chilled. He said he decided his watch was going too slow and that the automobilists, after all, were within the time limit.

NOTHING NEW IN MINNESOTA

The Minnesota legislature has adjourned without passing any new legislation affecting the automobile laws of the state. A number of bills were before the two houses, one of them imposing severe restrictions upon the drivers of motor cars. This measure, the Thompson bill, came nearest of passage, but was killed in the final rush at the close of the session.

The legislature adopted a revised code of statutes of the state, which will become effective March 1, 1906. The existing automobile law has been slightly remodeled in the revision, but is practically as at present.

DETROIT ORDINANCE LEGAL

After many months of legal battling, the supreme court of Michigan has decided that the much-talked-of Detroit automobile ordinance is "O. K." and a "just exercise of police power in the interests of the safety of the traveling public."

Justice Moore, who is an automobile enthusiast, did not sit in the case. The decision is the first which the Michigan supreme court has made. It says:

"We may take judicial notice that many automobiles may be driven at a speed of at least 40 miles an hour. Driven by indifferent, careless or incompetent operators, these vehicles may be a menace to the safety of the traveling public. Under its authority to regulate the use of the streets the city may enact ordinances which will diminish this danger. It is not difficult to see that the registration and numbering of automobiles is intimately connected with their safe operation in the streets. In a city like Detroit many automobiles are precisely alike in external appearance. They are sometimes operated by per-

sons whose faces are partially concealed and whose identity is uncertain. Those operators who are most reckless and indifferent, and those are the ones who endanger the safety of others, may violate this ordinance with impunity unless some method is adopted by which their automobiles may be identified."

In answer to the claim that the council has no power to require the payment of a license the court says that the sum required is no more than is necessary to pay for the number which the city furnishes, and is not a license for the purpose of raising revenue.

The ordinance does not come within the constitutional provision prohibiting "unreasonable searches" or compel any person to be a witness against himself in the court's judgment.

LEGISLATORS BREAK LAWS

The street railway committee of the Massachusetts legislature spent 2 days in motor cars last week, when they were given by Boston motorists an adequate idea of the pleasure to be gained by riding at the speed which their votes have caused to be considered as the legal rate. Ostensibly the committee was out to inspect the route of three proposed trolley roads between Boston and Providence, and it is difficult to see what knowledge it could gain of the proposed routes, considering that its eyes were filled with dust all the time. The party, in eight cars, started according to Hoyle, the operators all having agreed to respect the speed law. While going along Commonwealth avenue, where the law says 8 miles an hour, the cars crawled. This caused considerable grumbling from the legislators. They wanted more speed. Further along the rate was increased to 10 miles an hour, as provided by the law. This was too slow, and even when they got out in the country where a speed of 15 miles an hour is permissible under the law, the legislators raised objections to the slow speeding. This observance of the strict letter of the speed law was annoying to the members as a whole, and finally at one of the halts it was tacitly agreed to break them.

PRIVATE GARAGE A BARN

Mrs. Florence Shales Scovill, of Cleveland, O., recently planned to have an automobile house erected upon her property. Opposition was made, it being contended that an automobile house is a barn. The case was taken to court and Judge Strimple ruled that the proposed building was a barn and enjoined Mrs. Scovill from having it erected. The case will be taken into the circuit court, and possibly to the supreme court.

RUNABOUTS WILL PREVAIL

The two branches of the city council of Kansas City have each named a committee of three members to revise the automobile license law. At present there is a uniform license fee of \$5 per car, but it is now proposed to charge \$2 a year for cars carrying two passengers and \$1 additional for every additional seat. The change of fee is aimed at sightseeing automobiles.

GRIM BILL SIGNED

Governor Pennypacker, of Pennsylvania, on Wednesday last signed the Grim automobile bill, the compromise measure which finally passed the legislature just before adjournment. The law will go into effect January 1, 1906.

MANUFACTURERS' MISCELLANY



A GLIMPSE OF TIRE MAKING IN THE PLANT OF THE DIAMOND RUBBER CO., OF AKRON, O.

National Sales Manager—George M. Dickson is the new general sales manager of the National Motor Vehicle Co., of Indianapolis, succeeding Thomas Hay, recently resigned.

Goes To the Coast—Cortland S. Brown, who has been with the Pope Motor Car Co. of Toledo, as traveling salesman for the past few years, has resigned to accept a position with the Western Motor Car Co. of Los Angeles, Cal.

Friction Drive—A new concern to build friction drive motor cars is being organized in Worcester, Mass. G. B. Louderbach, of St. Louis, and James A. Dorr, of Oakdale, Mass., are the promoters. The plant formerly occupied by the A. G. Coes Wrench Co., at Main and Mill streets, is said to have been leased by the new concern.

Two and Four Cylinders—The St. Louis Motor Carriage Co., of St. Louis, will in the future give its whole attention to the manufacture of double-opposed-cylinder engine and four-cylinder vertical engine cars, both equipped with side-entrance detachable tonneaux. The St. Louis plant has been working night and day for the past 30 days.

Nearly a Half-Million—The balance sheet of the Rubber Goods Mfg. Co. shows that the profit during 1904 amounted to \$417,589. In 1903 it was \$360,845. According to President Charles H. Dale, the surplus would have been decidedly larger had not the cost of raw rubber increased about 12 per cent. At the meeting of officers of the company Charles H. Dale was elected president; Ernest Hopkinson, first vice-president; Charles A. Hunter, second vice-president; Talbot J. Taylor, third vice-president, and Harry Keene, secretary and treasurer.

Believes in Two-Cycle Motors—D. M. Tuttle, of Canastota, N. Y., manufacturer of motor boats and automobile engines, in a talk last week with a MOTOR AGE man said: "During the past 2 months our business, especially in the motor boat line, has made a great spurt. Judging from the way people are buying launches they must have a lot of money to spend. So far this month business has been 50-per cent better than it was last year for the entire month of April. The semi-torpedo stern is the popular style of boat this year. We are shipping boats to all parts of the world, including South Africa,

Australia, Norway and Sweden. We are now getting out designs for a new automobile engine of the two-cycle type. I believe that in 5 years the four-cycle will be superseded by the two-cycle engine."

Sells Chains in the West—L. D. Bolton, who has been previously the Chicago representative of the Federal Mfg. Co., is now with the Diamond Chain & Mfg. Co., of Indianapolis, and will look after the trade in middle and western states.

New Torbensen Concerns—The Torbensen Motor Car Co., which was recently organized in Bloomfield, N. J., has purchased the patents of the Torbensen Gear, Incorporated, and all the material connected with its automobile department. The Rajah Auto Supply Co. has been organized in New York, and has acquired the accessories business of the Torbensen Gear, Incorporated. The New York company has offices at 140 Washington street.

Franklin Air-Ship Motor—Captain Thomas S. Baldwin, whose air ship made successful flights at the world's fair at St. Louis, was a visitor last Saturday at the factory of the H. H. Franklin Mfg. Co., of Syracuse, where he discussed the building of an air-cooled motor to be used in an air ship which he will exhibit at the coming exposition at Portland, Ore. The first air-ship motor used by Baldwin was built by the Brennan Motor Co., of Syracuse. Baldwin says that the air-ship motor question is entirely one of maximum strength and minimum weight.

Grossman After Price-Cutters—Emil Grossman, manager of the Continental Caoutchouc Co., 298 Broadway, New York, is at present determined upon one point so long as he is intrusted with the American control of Continental tires, and that is that supply houses selling them shall not cut prices, and that they shall not sell them to other corporations or dealers who are known to sell them at reduced prices. For some time, it is said, half a dozen concerns have advertised to sell these tires at 10 per cent discount if each buyer would purchase a \$25 share of stock in the selling company. This was good bait, as the saving in purchasing one set of tires would in many cases more than pay for the stock. This condition resulted in widespread dissension and now Mr. Grossman has forwarded letters to all his agents in which he enumerates

all offending parties and in which he also asks the stopping of sales to such concerns.

Italian Serpollets—Leon Serpollet, of the Gardner-Serpollet Company of France, intends to build a factory in Italy, probably in Naples, for the manufacture of Serpollet steam cars.

New Midgley Factory—The Midgley Mfg. Co., of Columbus, O., manufacturer of Midgley pressed steel wheels, has purchased ground for the erection of a plant 400 by 400 feet, half of which will be two stories high.

Third Miller Branch—Charles E. Miller, of New York, dealer in automobile and bicycle accessories, who has branches in Boston and Philadelphia, has now opened a third branch in Cleveland. The store is at 406 Erie street.

Buick Centralizes—The Buick Motor Co., which has plants in Flint and Jackson, Mich., has decided to move the one in the latter place to Flint, where new buildings will be erected. At present Buick cars are assembled in Jackson while the motor and most of the parts are made in Flint. At the new factory the complete car will be turned out. At present about 250 men are employed in the Jackson plant and about 130 at the Flint works.

Morgan & Wright to Move—Morgan & Wright, of Chicago, one of the oldest rubber goods and tire manufacturing concerns in the country, will move to Detroit as soon as a factory has been erected in that city, which it is expected will be about January 1, 1906. According to Frank W. Eddy, a member of the firm of H. D. Edwards & Co., of Detroit, the Chicago company will be reorganized according to the laws of the state of Michigan. The concern now employs about 600 men, and this number will be increased.

The American Mors—As was told in MOTOR AGE a month or two ago, the St. Louis Car Co., of St. Louis, has gone into the manufacture of motor-cars as well as street-cars. The company has put up a large factory at 3200 North Second street, St. Louis, where it will build the American Mors, the factory to begin operation within a month. At present a large force of home and foreign draughtsmen is busy adapting the French specifications to the use of American workmen. Machinery is being rapidly installed in the building. W. S. Miller is general manager of the plant.

Judge Hasty—Billy Knipper, a tester for the Toledo plant of the Pope Motor Car Co., one day last week had a narrow escape from doing time at the workhouse for driving his automobile too fast in the bon-ton section of that city. The provisions of a statute passed by the last legislature was the only thing that saved him. Appearing before Police Judge Wachenheimer, Knipper was sentenced to 10 days in the Toledo workhouse, and was sent to the cells below to await the trip there, when the judge, after making a search about his stack of law books, found that the new state law, being the only one which pertains to regulating the speed of automobiles, provides only for a fine of from \$5 to \$50, and not for imprisonment. The judge then hastily reversed his decision, fining Knipper \$25.

The Realm of The Commercial Car



WITHOUT sufficient glory in threatening to supercede the horse in practically every walk of life, the motor car has turned a social agent by assuming the role of colonization commissioner. The pioneer of automobile colonization is the monstrous gasoline electric wagon illustrated herewith, made by the Commercial Motor Vehicle Co., of Detroit, for the Canadian government, which is to stock it with the products of the farm, the forest and the mines of Manitoba, British Columbia and other western provinces and territories and have it tour England, Ireland, Scotland and Wales, showing to the rural population the vast resources of these districts, thereby inducing the people to "go west" and possess the land. The wagon was accepted by the Canadian deputy minister of the interior recently, before being accepted having been subjected to an all day test over the worst streets of Detroit. From morning until afternoon the test continued, but still the government representative failed to say "Enough;" a still greater performance was necessary before the expected word placed the seal to the bargain and the wagon was accepted. The demonstrator realizing the ease of "now or never" turned into an exceptionally bad street that was deep with slush and mud and provided a 9-per cent grade. The "colonizer" negotiated it with ease. The operator stopped it in the center of the grade and then, switching on the current again, mounted the remainder as if a stop had not been made.

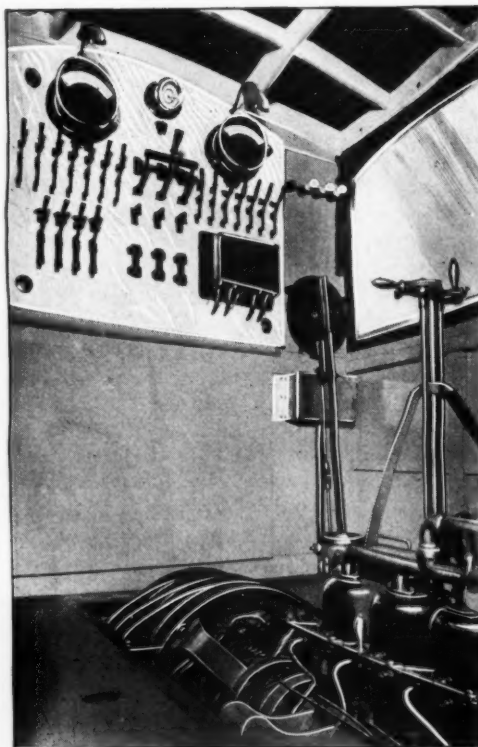
The wagon, after being filled with exhibition products, will be shipped to Great Britain where, in the hands of an operator and lecturer, it will tour particularly those places remote from railroads and where colonization work is ordinarily difficult. Its coming to the different places will be heralded by an advance agent who will distribute information and prepare the way.

A heavy rectangular platform extends from front to rear of the body and is carried on the axles by four heavy semi-elliptic springs working in sliding boxes on the under surface of the frame. The wheels are fourteen spoke artillery wood ones coupled direct with the electric motors used in the company's four-wheel drive system. Near the front of the car is a four-cylinder vertical gasoline motor of 16 horsepower used to drive a 12-kilowatt generator for furnishing current to the four 2½-horsepower electric motors, one of which is carried by the hub of each drive wheel.

A five-cell storage battery furnishes ignition current for the gasoline engine and is used to run the generator when starting the car, the generator, in turn, serving to start the engine, thereby doing away with cranking. The storage battery is continually recharged from the generator, but is automatically cut out before being overcharged. The gasoline

engine is water-cooled in the usual way, a horizontal tube radiator hung beneath the floor of the car in rear of the front axle serving to cool the water. All cylinders of the gasoline engine connect with a cylindrical muffler carried in the rear, and near it is the large gasoline tank. For steering there is used a large wheel on a vertical column, the bottom of which connects with the four wheels, giving the four-wheel drive and steer common to the Commercial vehicles.

While the power plant is interesting in many ways it is the body of this colonizer that is looked to to be the magnet that will draw the Britishers from their hamlet homes in the old land and induce them to settle upon the western prairies. Upon first glance it is circus-like in the extreme, but a slight examination reveals the fact that it possesses many devices and decorations foreign to the circus van. The box-car body built of the finest grades of polished Canadian woods, is 20 feet long and 10 feet high when closed as shown in the illustration, but when the side doors are opened the length is increased to 26 feet and the height to 18 feet. On the top the word "Canada" is outlined in incandescent lights and beneath the projections of the roof are rows of lights. Each side is resplendent



CAB OF CANADIAN CAR



CANADIAN COLONIZATION CAR

with gilt letters and decorations extolling the resources of the northwest and graphically telling the future of all who settle therein.

The body divides itself into two parts; at the front is a cab containing all the operating mechanism, and the remainder is an exhibition room which is filled with products of the country. The former space also provides sleeping accommodations for the driver and lecturer when occasion demands. The cab is lighted by day through large beveled glass windows and by night by numerous electric lights, while on the outside there is carried on one side the Maple Leaf, the emblem of Canada, and on the opposite side the Canadian coat-of-arms.

The exhibiting features of this colonizer are unique. On each side are six doors; three of which are hinged to open upward and three to open downward. Within are other doors which open both to the front and rear. On the inner sides of these are arranged samples of all the grains, grasses and vegetables grown in Canada. The opening of all the doors discloses the interior of the car, which is stocked with glass cases filled with samples of fruits and cases of specimens of different minerals common to the sections of the country advertised by the vehicle. The beauty of the exhibits is enhanced by elaborate electric lighting. Each door is surrounded with them, and mixed with the exhibit case in the interior are numerous small lights. Power for lighting is furnished from the generator and storage battery, and within the driver's cab is a switchboard for turning on the lights in any part of the wagon.

Without load the weight of the wagon is slightly over 4 tons, and when fully loaded it approximates 7 tons. Under load it is said to consume 1 gallon of gasoline per hour. It will travel at a 12-mile an hour rate of speed.

SYNNESTVEDT PROGRESS

The Synnestvedt Machine Co., which is now located at 4117 Liberty avenue, Pittsburg, is negotiating for adjoining property with a view to enlarging its shops and engaging in the manufacture of automobiles on a large scale. It is now the only firm in Pittsburg that makes cars, although it is reported that the Westinghouse interests intend to build cars at East Pittsburg. The Synnestvedt company is now building a 5-ton truck for the Hartwell Coal Co., of Chicago. Last fall the company built a passenger bus for the Seaside hotel at Atlantic City. The car was so successful that the hotel company ordered another, which was delivered 3

months ago. The company now manufactures opera buses, delivery wagons, trucks, surreys, runabouts and tonneau cars. It does not build touring cars. The company contemplates making its own storage batteries. It builds every other part of the car now.

On March 17 an open bus constructed by the Synnestvedt company made 14.3 miles an hour on the level on Grant boulevard, with a current of only 27 amperes. The machine weighs 4,500 pounds. The car made 4.5 miles an hour on an 8-per cent grade on Center avenue, 6 miles an hour on a 5-per cent grade on the same street and 20 miles an hour on a down grade with only 25 amperes. It made 11.2 miles an hour on a 1-per cent grade on Grant boulevard with a current of 35 amperes ascending, and 16.5 miles an hour with a current of 24 amperes descending.

LONDON PASSENGER SERVICE

Commercial vehicle manufacturers in this country will find much to interest them in a consular report just received by the government giving some account of motor buses in London. Many tentative efforts have been made to adapt the self-propelled stage-coach to metropolitan conditions, and out of them several styles of motors have survived as suited to bus purposes. The points claimed in favor of each style are cheapness, trustworthiness, comparative simplicity in handling and freedom from noise and odor. Each of the great London omnibus companies has adopted its type of motor car, and each is striving to see which will be the first to make the change in locomotive power.

London is, without doubt, the chief bus-using city of the world. It is estimated that there are about 2,500 omnibuses in that city. To replace them, reckoning two motor buses to three horse omnibuses, would require over 1,600 automobile buses at least, but more likely 2,000 will be necessary, for on some of the routes small single-decked vehicles will be used. The field is a large one, and the replacement of horses by motors will not be a matter of months, but of years.

The London General Omnibus Co., which, as the greatest of the bus companies, had most to lose by any wrong step, deliberated over the idea for some years before it began to change its motive power. It has had two motor buses running for a few weeks, and the trials have been so satisfactory that the company has decided to turn its horse buses into motor buses by mounting their bodies on motor chassis. Two types of buses have been chosen. The speed of one type will be about 11 miles an hour, and it will carry the usual twenty-six passengers. The other type is a steam car with no roof seats, which is intended to carry sixteen passengers, but the police will not allow the two front seats beside the driver and the single seat beside the conductor to be used.

Armed with a stop watch, a representative of one of the London newspapers recently journeyed from Oxford circus to Rye lane, Peckham, by one of the motor buses. The distance is $5\frac{1}{4}$ miles. The total running time from start to finish was 38 minutes. The total time of twelve stoppages to pick up or set down passengers—delays due to traffic were not timed—amounted to 3 minutes 40 seconds; therefore $5\frac{1}{4}$ miles were covered in 34 minutes 20 seconds, showing an average speed of slightly under 10 miles an hour. This, of course, means that much of the journey was done at the rate of 12 miles or more per hour. It is instructive to note that the longest stoppage, at Camberwell green, was of 35 seconds; and on three occasions the bus stopped, set down or took up passengers, and started again in 5 seconds. From Westminster bridge to Rye lane the bus occupied 22 minutes for the $3\frac{1}{2}$ miles, and the stoppages were 1 minute 50 seconds. On the Westminster bridge road it overtook one horse-drawn bus, and arrived at the terminus at the same moment as another.

The newspaper man traveled back to Westminster by electric tram car for the sake of comparison. The tram car took thirty min-

utes under which a company would work in London, and they are of opinion that their estimate of 4 cents per mile per omnibus should be naturally increased as the company's business develops.

CAREFUL MILITARY TEST

The Minister of War in France has completed arrangements for a test of commercial vehicles the first week in August, in the transporting of provisions for army use over various road surfaces. The test will be under the immediate direction of the technical committee of the military staff which has in outlining the arrangements been in constant communication with the officers of the automobile board of trade. The object is to ascertain the servievibility and reliability of motor cars for this difficult department of army maneuvers and it is stipulated in the regulations governing the test that the government shall purchase the three cars making the best performance during the six successive days of the test and donate to the entrants of the next four cars cash premiums.

The total distance to be covered by the vehicles is $206\frac{1}{4}$ miles, divided into daily runs as per the following schedule:

First day, weighing-in and loading of cars, together with a run of $18\frac{3}{4}$ miles.

Second day, run of $46\frac{7}{8}$ miles over a different road than that traversed on first day.

Third day, run of $46\frac{7}{8}$ miles over a different road from that used on two opening days.

Fourth day, run of $46\frac{7}{8}$ miles over a road not previously covered.

Fifth day, run of $46\frac{7}{8}$ miles over road covered on second day.

Sixth day, examination and inspection of cars and rendering of decisions.

All roads to be used in the competition are in the immediate vicinity of Paris and well suited for commercial tests, in that all reasonable grades are encountered and variable surfaces traversed.

All vehicles competing must be made in France, by French manufacturers and have only such parts as are built in French factories and by French labor. Either gasoline, steam or alcohol may be used as motor fuel and it is the intention of the judges to make close investigations into the relative merits of these three fuels.

In making their decision the judges will observe the following scale of points:

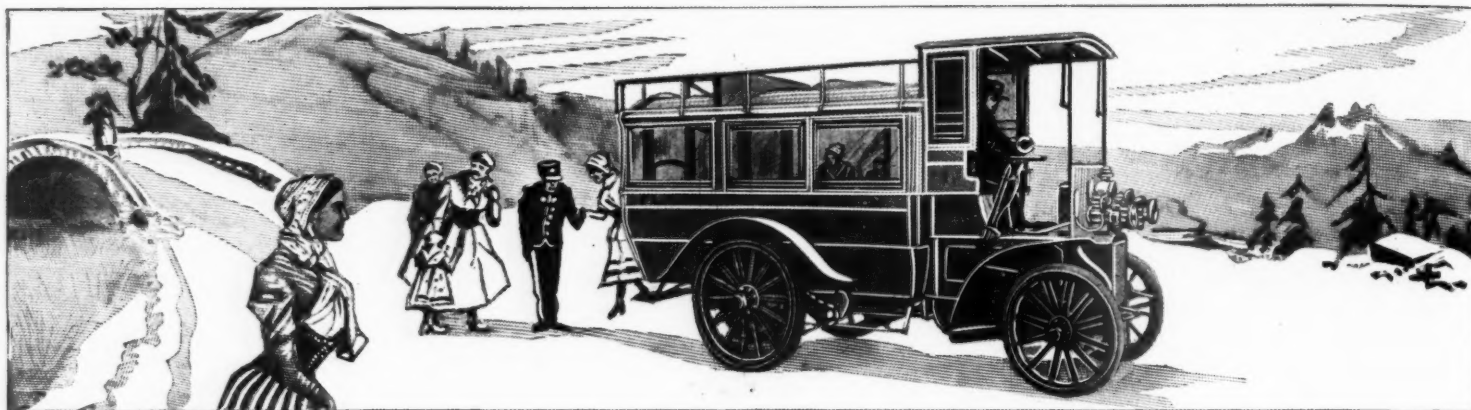
A total of 100 points is granted for a perfect performance. The horsepower of the motor, its ease of operation and accessibility will be allowed thirteen points. Cooling arrangements, such as water jackets, radiator, pump and fan efficiency; and in steam cars efficiency of the condenser, five points. Amount of fuel and lubricants used and cost of each, fifteen points. Working and reliability of such parts as the carbureter, transmission gear, clutch,



GYROSCOPE FOUR-WHEEL DRIVE AND STEER TRUCK IN NEW YORK MAIL SERVICE

utes to the motor bus' 22 minutes, but it made sixteen stoppages to the bus' six. The whole delay through stoppage was 3 minutes 43 seconds, against the bus' 1 minute 50 seconds. Although the tram car took 26 minutes 17 seconds for the $3\frac{1}{2}$ miles, as compared with 20 minutes 10 seconds for the motor bus, the maximum speed attained by the former was higher, probably 15 miles an hour. But the tram car was constantly delayed by traffic on the lines. This is the reason why motor buses will inevitably prove faster than tram cars. These figures are useful as illustrating how formidable the motor bus may prove to the tram car.

Two of the directors of the London Motor Omnibus Co., who have had experience in the working of motor omnibuses, have prepared an estimate of the profits to be derived from the company's business. They consider that each motor bus of the company should have a minimum average run of 90 miles per day and should earn a net profit of at least 4 cents per mile, or \$3.60 per day, or \$21.60 per week of 6 days. In arriving at this estimate of profit they have taken into account the conditions



MARTINI SINGLE-DECK OMNIBUS FOR SWISS SERVICE

etc., fifteen points. Strength of road wheels and reliability of tires, fifteen points. Efficiency of brakes, ten points. Ease of operation of the car, five points. Ability to start quickly and hill-climbing qualities, eight points. Housing and location of the parts of the car so that all are well protected from gunshots or other missiles, two points. Relation of load carried to the total weight of the car when not loaded, seven points. Average speed maintained throughout the test, five points.

The following features in car construction must be observed by all entrants:

Electric ignition must be used in all gasoline or alcohol vehicles and preference is given to magneto forms; the transmission gears are to have three forward and one reverse speed, the lowest being from 2 to 3 miles per hour and the highest from 10 to 12 miles per hour; vehicles must be capable of going 46 $\frac{2}{3}$ miles without stopping for fuel, water or lubricants; the clearance of each must be 7 inches, except where the chain sprockets and brakes are attached to the rear hubs; in body design the wagons at present used by the railroad department of the army section gangs should be closely followed and the total weight of the vehicle, including the driver, must not exceed 7,040 pounds, and its load carrying capacity must range between 2,200 and 2,640 pounds; during the test not more than two mechanics are to be carried on each vehicle and these two must effect all needed repairs, the parts for which must all be carried on the wagons.

PITTSBURG BUS LINES

The Auto Traffic Co., of Pittsburgh, is now established in its new quarters in the Bailey-Farrell building at Third avenue and Ross street. Manager S. J. MacFarren has about completed arrangements for the "Seeing Greater Pittsburgh" line of buses which will be started in June. There will be three cars—10-horsepower electrics of the canopy top style carrying twenty-four people each. The work of laying the steel highway track from Etna to Undercliffe, the first road of its kind in Allegheny county, is well started and it is likely that the Etna-Allison park line of buses than ran over this road last summer will be resumed when the highway work is completed.

The Allegheny Country Club, of Allegheny, Pa., now has two 20-horsepower buses, which were manufactured expressly to its order, and delivered to it by the Standard Automobile Co. The buses will be used in carrying members of the club back and forth from the club house on Sewickley Heights to the Sewickley station on the Pittsburgh, Ft. Wayne

& Chicago railroad, a distance of 1 $\frac{1}{2}$ miles. It was stipulated in the contract that the buses should be able to climb the steep grade from the station to the club house in 15 minutes, and they have made good in this respect.

OMNIBUSES IN SWITZERLAND

The gasoline passenger bus has already gained a position in interurban transportation in Europe which compares favorably in many respects with that of the trolley car in America. This condition is largely due to the excellent roads surrounding large centers of population, as well as the presence of similar highways connecting these centers with the numerous surrounding localities.

F. Martini & Co., Swiss manufacturers, have in operation in several continental cities, particularly in Switzerland, lines of enclosed gasoline buses. They particularize on two styles, both with all the driving requisites conveniently grouped around the operator, who occupies a position corresponding to that of the driver of a touring car, with front glass and projecting roof. The two cars differ in that one has an open platform at the rear, arranged for side entrance as in a street car and has both seating and baggage room at the top, while the other has a central rear entrance and the entire roof railed for carrying baggage. Within both styles the seats are arranged along the sides, and on each side are three large drop windows with draw curtains and beneath the seats are numerous chambers for light baggage or parcels.

The frame, with all machinery mounted thereon, is carried on four semi-elliptic springs resting on beds on the top of the stationary axles. All road wheels run on ball bearings. The rear ones are somewhat greater in diameter than the front ones and broad solid rubber tires are used on all. A 20-horsepower four-cylinder vertical motor is carried on the frame in front, only the front cylinder being covered by a bonnet, the remaining ones being beneath the footboard of the driver who sits high in order to give sufficient passenger room without necessitating an unduly long wheel base. When under load the motor runs at 1,000 revolutions per minute. In most respects it is an exact duplicate of the motors used in Martini touring cars, having mechanical valves, magneto ignition with current generated by a Simms-Bosch magneto, automatic carbureter, water-cooling by a honeycomb radiator forming the front of the bonnet, and a gear pump for water circulation. The base of the motor is protected by a metal apron extending from the base of the radiator to the transmission gear case.

A friction clutch flexibly connects the motor and sliding transmission gear, which gives four forward speeds and a reverse, the former being 3, 6 $\frac{1}{2}$, 10 and 12 miles per hour respectively. All speed changes are effected by a lever beside the driver. In the rear of the gear case is the differential carried on a cross shaft on each end of which is a sprocket for double chain drive to the rear wheels. The sprockets on the ends of this shaft are small while those on the road wheels are large, being bolted to alternate spokes near their outer ends.

The drum brake for regular use is a metal-to-metal one on the differential shaft and is water-cooled, permitting its continued use on long descents common in many districts. There are also brakes on the rear hubs, within the sprockets, and at the driver's right is the lever for applying them. Steering is by handwheel mounted on a vertical column connected with regular steering knuckles, the rod coupling the knuckles passing in front of the axle.

The interior and exterior finishing of the body is in keeping with that common in automobile building. Seats are heavily upholstered and the outer body surface is highly finished. Over the front wheels are flaring touring car fenders, but the short ones above the rear wheels are more on the lines of those used on a light commercial wagon and are carried by brackets on the side of the body. The dash has in front its usual quota of head and side lights and on the rear side oilers and other small parts.

ECONOMY IN RETAIL DELIVERY

One of the most enthusiastic supporters of automobiles for commercial purposes is M. Lemp, a Syracuse jeweler. For a year and a half he has been running a gasoline delivery wagon and he now says that it is saving him the keeping of three horses and is rapidly increasing his business. Mr. Lemp does a large business in collecting clocks, taking them to his store, repairing them and returning them. In the old times it took three horses to do this work. Not only does one automobile do the business, but Mr. Lemp is enabled to go into the surrounding towns and villages, traveling 20 or 30 miles a day and securing business which he never hoped to get in the days when horses did the work.

The rig cost Mr. Lemp \$2,000 and he figures the cost of running, repairs and a chauffeur at about \$80 per month. He formerly spent \$250 per month for the same service. It is needless to say that he is well pleased as far as the reduction of expense is concerned.

Mr. Lemp's machine was not originally built for a delivery wagon. It was a 20-horsepower

pleasure car, an Iroquois. He had a top of the regularly closed delivery wagon type built and put it on. He has never had any trouble with the machine above the ordinary amount of repairs.

"An important feature of commercial vehicles at this stage of the game," said Mr. Lemp to a MOTOR AGE man recently, "is the advertising value. Of course when they are so common as not to attract any notice this feature will not exist. But now my machine is worth more than columns of newspaper space. It has my name, place of business and location in large letters on the sides and back, and thousands of people see it every day. When I was running simply a wagon no one would look at it a second time.

"Another important feature I wish to emphasize is the quickness of service. A person telephones for me to send after a clock. The machine happens to be here and the driver jumps into it and soon reaches the house. In one case the woman said she had only just hung up the receiver and wondered how we got there so quickly. These things count a lot with the public. When the machine is not on the road I have it standing in front of my store as an advertisement and it is a good one, as a large number of people are around it all the time.

"Many merchants make the mistake of buying too small a machine for delivery purposes. It needs a good strong machine to stand all the roads in this city and I suppose the same is true in other cities. Then if you attempt to go into the suburban towns it certainly wants a machine of generous horsepower. The investment is a little more to start with but it pays in the end."

AN ENGLISH STEAM WAGON

The horizontal tube locomotive boiler for steam cars is being more and more used in England and France for commercial use. While this type of boiler consumes practically twice as much fuel as the vertical tube boiler it has advantages which, in spite of this extra fuel consumption, are important. The horizontal boiler, besides being safer, is more easily controlled and in the hands of the inexperienced driver gives less trouble.

The new Straker 5-ton steam car built by the Straker Steam Vehicle Co., of England, employs the locomotive boiler with the motor carried on top of it. The frame, of pressed steel in T section, is narrowed at the front end to facilitate boiler support and steering. It is carried at the rear on two heavy semi-elliptic springs with ends working in sliding blocks, and at the front by one cross spring working in sliding blocks on the axle, the center being clamped to the

trunnion on the boiler. Heavy cast steel wheels are used front and rear, the latter being 10 inches wide and the former 6 inches. The tread of the rear pair is 5 feet 2 inches and that of the front ones 4 feet 2 inches. The wheel base is 12 feet 8 inches, and the total length of the car is 20 feet.

The boiler, carried on the frame pieces in front, has its front end directly above the front axle and extends about one-third of the distance to the rear wheels. It is rated at 40 horsepower, has two 4 by 7-inch engine cylinders and works with 200 pounds of pressure per square inch. The safety valves are placed on the top.

Transmission from the motor to the rear axle is through a two-speed gear. On the counter shaft are two gear wheels that can be meshed with two other gears on a counter shaft immediately behind the crank shaft. When one pair of these gears is engaged the slow drive is obtained, while engagement of the other pair gives the high speed. On the counter shaft carrying these gears is a chain sprocket for a single roller chain final drive to the differential on the rear axle. This axle is a solid forging from end to end, with one of the bevel gears of the differential attached to it, the other gear being secured to a sleeve carrying one of the road wheels and rotating on the solid axle.



RECENT INCORPORATIONS

Boston, Mass.—M. & S. Tire Co., capital \$200,000.

Hampden, Mass.—Hampden Auto Co., capital \$10,000; to deal in automobiles. Incorporators, Homer R. Barton, George H. Jones and Miron A. Gilman.

Davenport, Ia.—Davenport Automobile Co., capital \$10,000. Was formerly the Stoltenberg & Reimers Co.

New York, N. Y.—Hewitt Motor Co., capital \$100,000; to manufacture motor cars and motors. Incorporators, Erskine Hewitt, Edward S. Hewitt and Charles O. Snyder.

Toronto, Canada—Acme Mfg. Co., capital \$40,000; to manufacture and deal in automobiles. Directors, J. T. Eastwood, N. Murphy, E. E. Wallace, E. O. Hodgson and A. J. Walker.

Portland, Me.—Maine Motor Boat Co., capital \$10,000. Those interested in the concern are Howard R. Ives, Ethel A. Turner, Levi Turner, S. E. Thompson and P. C. Goff.

Cleveland, O.—Auto Express Delivery Co., capital \$10,000. Incorporators, J. M. Garfield, R. K. Pilton, F. H. Linn, A. J. Green and E. J. Blandin.

Akron, O.—Motz Clincher Tire & Rubber Co., capital \$50,000.

Toronto, Canada—Dominion Motor Car Co., capital \$20,000; to manufacture motor cars.

Chicago, Ill.—Haynes-Apperson Co., capital \$10,000.

The steering gear is a worm and sector on the bottom of an inclined steering column which communicates with the steering wheels through chains carried on a cross shaft in line with the axis of the sector. This is the traction engine steering principle but is largely used in England on heavy wagons that do not travel fast. Against the rear wheels, brake blocks are applied through a side lever operating through a vertical shaft, bell crank and horizontal shaft.

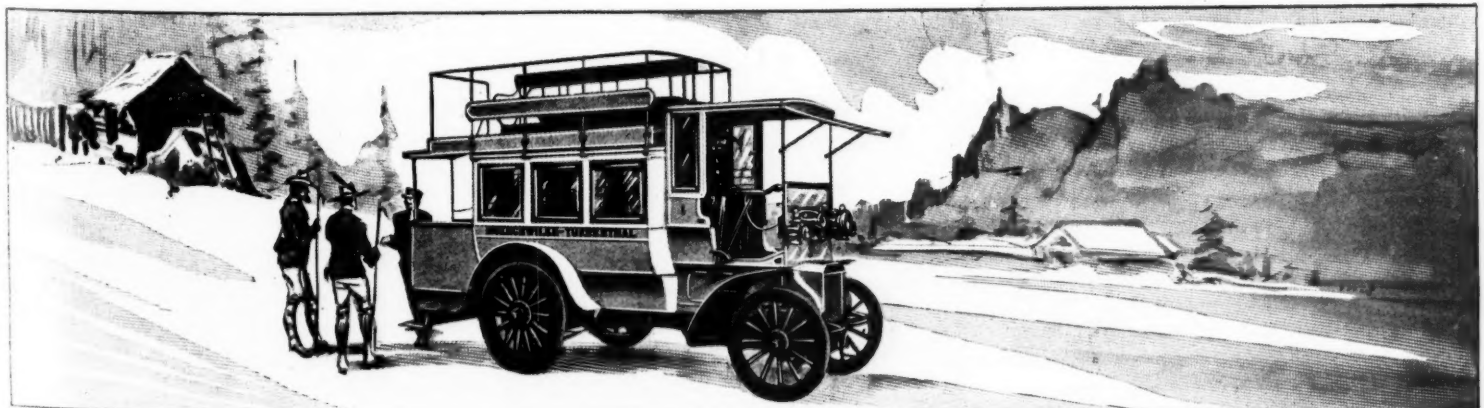
DE DION-BOUTON WAGONS

Ten different styles of commercial vehicles, ranging from a six to ten-passenger bus to a 5-ton freight wagon, are manufactured by De Dion-Bouton & Co., of France. For passenger service three buses are made. All are designed with side seats with three large windows on either side. The largest one has accommodation for eighteen passengers on the seats, and standing room for three or four on a rear platform much resembling that of a small street car. The driver's seat is protected by a roof projection, and steering and control devices are arranged the same as in touring cars. The motors, which are of two or four cylinders, are mounted vertically beneath the front seat and drive through a universally coupled propeller shaft to a sliding gear transmission encased with the differential in front of the rear axle. Each vehicle has carrying space for 660 pounds of baggage, part to be carried on the roof and some beneath the seats and on the platform. All are built for a speed of 15 to 20 miles per hour and weigh from 3,600 to 4,600 pounds.

The 12-horsepower two-cylinder freight wagon has running board sides and will carry a 3,000-pound load. Fuel is carried in metal tanks strapped to the dash. The wagon weighs 3,600 pounds and has a maximum speed of 12 miles an hour on the level.

The four-cylinder, 15-horsepower 5-ton truck is made with a very long wheel base, a long propeller shaft connecting the motor with the gear case on the rear axle. The rear end of the front semi-elliptic springs are not fastened direct to the frame, but are shackled to short quarter-elliptic springs clamped around the frame member. The horizontal tube radiator is carried low, in front of the front axle.

The company's line of delivery wagons includes three enclosed models with carrying capacity of from 1,100 to 2,200 pounds and a speed of 18 miles per hour. In the smallest model the single-cylinder motor is beneath the seat, but in the larger two the respective two and four-cylinder motors are beneath a bonnet at the front. The company also builds a four-cylinder railroad car which has a speed of 32 miles per hour.



MARTINI DOUBLE-DECK OMNIBUS FOR SWISS SERVICE

THE READERS' CLEARING HOUSE

FLAT AND BEVEL VALVES

Syracuse, N. Y.—Editor MOTOR AGE—Which are the better for mechanical operated valves, those with the peripheries beveled or those with the flat seats? Is there any difference in the wearing of them and which are the harder to grind? At what part of the stroke should the inlet open and when close, and also at what part of the stroke should the exhaust open and close? The motor for which these valves are intended is a water-cooled vertical four-cylinder one of 24 horsepower, running at 900 revolutions per minute.—L. Mc. H.

MOTOR AGE prefers the conically seated valve as it will wedge itself tight while the mushroom type valve will not. A little dirt under the seat will affect the conical valve the least. In the matter of grinding they are alike. Open the exhaust valve when the crank pin on the power stroke makes an angle of 40 degrees with the cylinder axis. Close exactly on the center with the piston up. Open the inlet valve as the exhaust valve closes and hold it open until the suction stroke has been completed and the crank pin has returned through an angle of from 10 degrees to 30 degrees, depending upon the speed of the motor when its normal speed is from 600 to 1,800 revolutions per minute. Exact information on valve setting cannot be given unless the design of the motor and other data is known.

FASTENING OF CAMS

Rochester, N. Y.—Editor MOTOR AGE—I have been examining several machines with the object of purchasing one and have met with a variety of recommendations concerning every part of the cars. I have not been satisfied on the matter of cam shafts, and though it may be a trifle in car consideration I would like to know what MOTOR AGE considers best in this line. Which is preferable, a cam shaft for inlet and exhaust valve operation with the cams all integral, one with them keyed in place, or one with them pinned? What is the wear on a cam that is kept well lubricated?—W. L.

The point in question has but little effect upon the operation of the car, for if properly set it does not matter whether the cam shaft group is in one piece or more. This is purely a question of manufacture. It is preferable to key the cams and have them pinned in addition to prevent shifting longitudinally on the key.

DRY BATTERY TROUBLES

Dayton, O.—Editor MOTOR AGE—The construction of batteries is such that troubles come very suddenly—often they give out, seemingly without cause and when least expected. The writer has made many observations and had many experiences with supposedly "dead" batteries, and finds that the composition in the cells is hardened and dry around the edges when they fail and refuse to give a spark. Take a knife and dig down between the carbon and zinc as far as it is possible, fill them with

clear water at any farmhouse or creek nearby; if in some small town get salt water or vinegar. This will restore them. A better result may be obtained by filling them with muriatic acid and waiting half an hour, when one can run 75 or 100 miles without trouble. I recently took an old set of six cells which were thrown away nearly a year ago, used water with good result, vinegar with better result and muriatic acid with the best result. All amateur tourists I wish to advise to keep all terminals bright and clean and free from oil, all knurl nuts tight and the cells so placed in the battery box that the terminals do not touch one another.—J. R. M.

USE OF STRUT RODS

Chicago, Ill.—Editor MOTOR AGE—My large touring car has a propeller shaft drive from the sliding gear transmission to the center of the live rear axle, and is fitted with radius rods at the side and with a central torque rod almost parallel with the shaft. I am rather at a loss to know the exact use of this torque rod; whether it is to adjust the bevel gear on the end of the shaft with that on the differential, or if it is simply a support. As the shaft has a universal joint at each end, in one of which the shaft works in a square sleeve, I cannot see how the torque rod is needed for adjustment. Are the radius rods for preventing the springs from all but a downward strain or do they perform other duties?—H. ADAMS.

There is no need of using outside radius rods in combination with a driving strut as described, for to have the motion perfectly free these should have their pivot centers exactly in line, which is not the easiest thing to secure. The idea in the construction evidently was to prevent side motion of the rear axle in turning corners. The illustrations show the exaggerated rear axle position when the

radius rods only are used and when the driving strut only is used. A combination of the two, of course, would allow practically no side motion to the axle. It merely prevents a condition, the result of which would not be detrimental. In the case shown in Fig. 1 the whole axle swings on the joint of the driving strut as a center, giving the axle a position not at right angles to the frame. In the case shown in Fig. 2 the axle moves in a line parallel to its normal position. When either the radius rods or a driving strut is used its purpose is to push the car or hold it back, depending on whether the motor is in operation or the brakes are applied. Incidentally they keep the springs in position.

LEATHER AND RUBBER CEMENT

Rumford Falls, Me.—Editor MOTOR AGE—Will you tell me through the Readers' Clearing House where I can get or how I can make a cement that will stick leather to rubber so that it will stay? I have seen leather fastened to the tread of tires and wish to place some on old tires of mine. The leather I noted was cut into pieces about 6 inches long and stuck to the tread all the way around the tire, thereby making a leather tread to greatly prolong the life of the tire.—F. E. R.

The leather is not cemented on, but is vulcanized. MOTOR AGE cannot give a cement formula for leather and rubber which would serve the purpose satisfactorily. It is better to vulcanize the leather to the tire and secure a permanent job.

INLET PIPING LENGTH

Washington, D. C.—Editor MOTOR AGE—What are the advantages of short piping from the carburetor to the inlet valves? In one car 17 inches is the distance from the carburetor to each cylinder, while in another the distance is almost 36 inches. Is there a more uniform flow of mixture with the shorter piping and does the cold effect the long pipes? Would there be any advantage in covering induction pipes with felt or other material to prevent condensation of the mixture in cold weather?—E. M. B.

Short carburetor pipes increase the volume of charge taken into the cylinder and at the same time, on account of being short, reduce liability of condensation of the gas before it

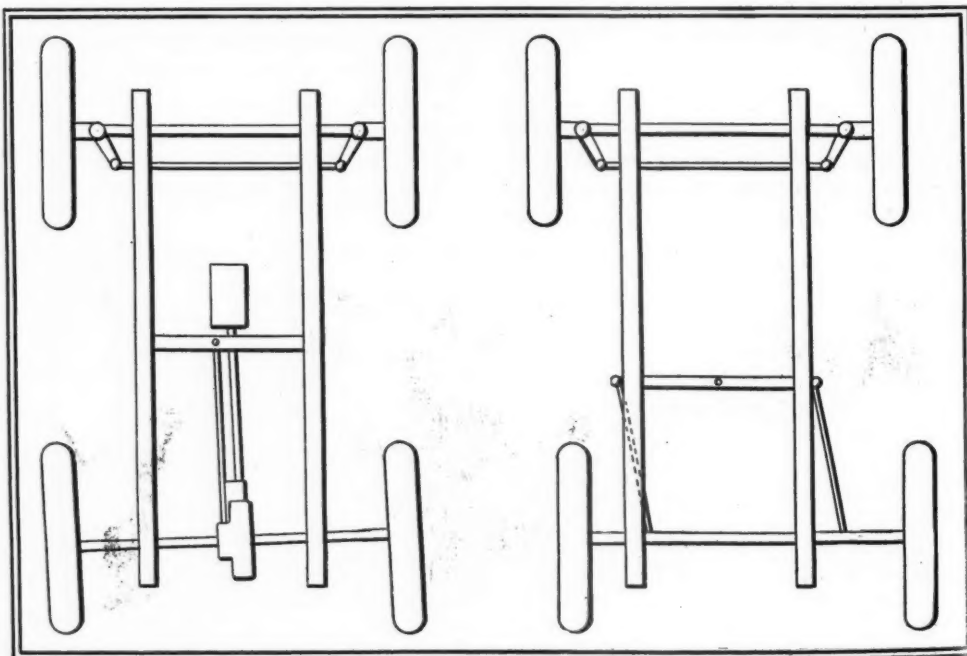
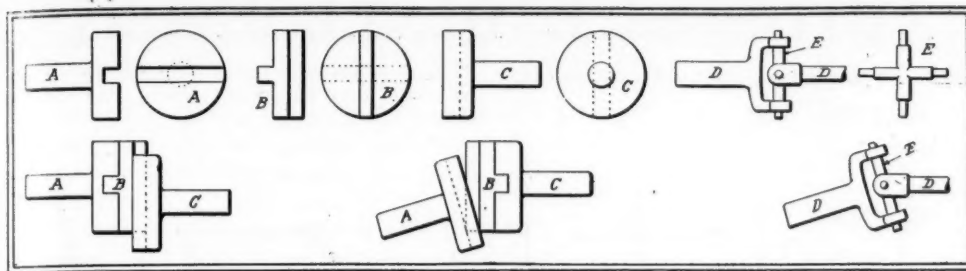


FIG. 1—ACTION OF STRUT RODS—FIG. 2



CONSTRUCTION AND OPERATION OF OLDHAM AND UNIVERSAL JOINTS

reaches the cylinder. Short pipes give a higher degree of vacuum, for if the carbureter is on the end of a pipe extremely low and the piston displaces a certain volume of air each suction stroke, the suction would not be so great at the end of the long pipe as it would at the end of a short one. The action is the reverse of compression, but a simile may be made with that of compression. Suppose there are two similar cylinders and pistons of 5-inch stroke. In Fig. 1 is shown one with 1-inch clearance, and in Fig. 2 is one with 4-inch clearance. There is no question which cylinder would compress to the highest pressure. Assume them to be air tight and attempt to draw the pistons out to the outer position which is 5 inches to the stroke. It would be quite easy to thus draw the piston shown in Fig. 2, as the gas would only have to increase its volume 4 to 9 inches. There would not be much gained in covering the pipes, but it would be of advantage to attach a water jacket to the carbureter and arrange to have warm air taken into the inlet.

WIRING QUADRUPLE COIL

Brookline, Mass.—Editor MOTOR AGE—My four-cylinder car is equipped with a La Coste vibrating quadruple coil and I would like to know the method of wiring inside the box, connecting the primary coils together, and also the way in which the secondary current returns to the individual coils after jumping the spark gaps in the plugs. The method of wiring is as follows: One pole of the battery is grounded on the engine frame and the wire from the other pole passed through the switch to the binding post on the coil box. The four primary binding posts are connected to the timer by the four primary wires and the four secondary wires from the coil box go to the plugs. I cannot trace the secondary current back to the coil box after it has jumped the gaps in the spark plug, as the coil is in no way grounded on the frame, except as mentioned.—W. M. B.

The return of the secondary current is made through the wire that is led to the coil from the battery. The wiring inside the box is shown in the diagram herewith in which P represents the two primary terminals on each coil, S the secondary terminals and B the battery terminal. The coils are shown as individual coils for the sake of illustrating more clearly. Notice that the connections from B on the coil box carry the current to each coil, as each connects with the same wire. Notice, also, that each coil has one secondary connected to the same wire. The switch is placed between the binding post and the first branch to a coil.

WOOD TIRES ON TRUCKS

Baltimore, Md.—Editor MOTOR AGE—Will wooden tires work successfully on a 5-ton, four-wheel drive, electric truck which is generally used on brick and macadam pavement? The truck never travels faster than 6 to 8

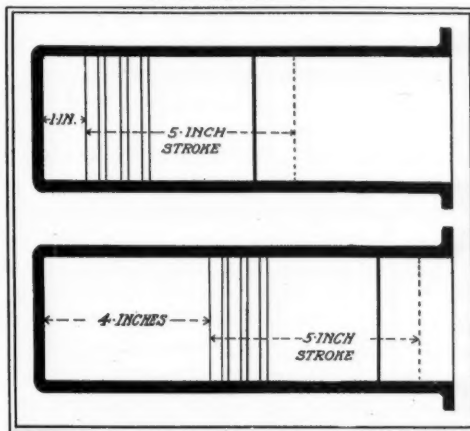
miles per hour, and has few hills to negotiate.—H. T. K.

Experiments are being made with wood tires for heavy trucks, and it is possible that they may prove of great service. It is not fair, however, to pass judgment at this stage of their use.

TWIN-CYLINDER MOTOR

Detroit, Mich.—Editor MOTOR AGE—In a recent issue of MOTOR AGE in which several English made automobiles were described I note that one, the Singer, is said to have the two-cylinder horizontal motor, with the cylinders side by side and heads to the front, the

INLET SUCTION—FIG. 1



INLET SUCTION—FIG. 2

crank shaft being made with the crank pins in line instead of the throws being set at 180 degrees, and the crank shaft being balanced. Will this construction give as easy running as a double-opposed horizontal motor with the crank throws at 180 degrees?—H. BRIGGS.

This construction will not produce as well balanced and smoothly running car as the double-cylinder opposed motor with the cranks 180 degrees apart.

UNIVERSAL COUPLINGS

Cleveland, O.—Editor MOTOR AGE—Will you illustrate and explain an Oldham coupling and show what is the difference between it and a universal joint. In examining cars I frequently have the salesmen use the term and they say it is better than a universal

joint, but they cannot say just how it differs.—H. H.

In the illustration A, B and C represent the three pieces in an Oldham coupling. This coupling consists of two pieces A and C which have slots in their faces and are alike and a central piece B, which has a tongue on each face that fits into the slot of the corresponding pieces A or B. These tongues are at right angles to each other. The use of this joint principally is to adjust for lack of alignment when two shafts, transmitting one to the other, have their axes parallel but not intersecting. For any other condition a universal joint is advisable, although if the shafts are but slightly out of parallel, as in the cardan joint of double chain drive cars, it is efficient. The first of the two assembled views show when this style of coupling is used to the best advantage while the other shows when it is not to be used.

One type of universal joint is illustrated. It consists of two yoke members, D at right angles to each other and connected with their respective sections of the shaft. Between these yokes is a cross piece E which is pivotally supported in the yokes. This single joint will then transmit motion at an angle but the axis of the shafts intersect at the center of the cross as shown in the assembled view. With this joint motion cannot be transmitted if the shafts are parallel and not intersecting, nor if they are not parallel and not intersecting. To accomplish the latter result, two of these joints are used, placed one at each end of the shaft, which then makes the shaft and joint really universal, as it accommodates itself to all possible distortions.

GAS CONSUMPTION

Elgin, Ill.—Editor MOTOR AGE—In large producer gas engines, what amount of gas per horsepower per hour is necessary? What is the explosive power and gas velocities?—B. R. M.

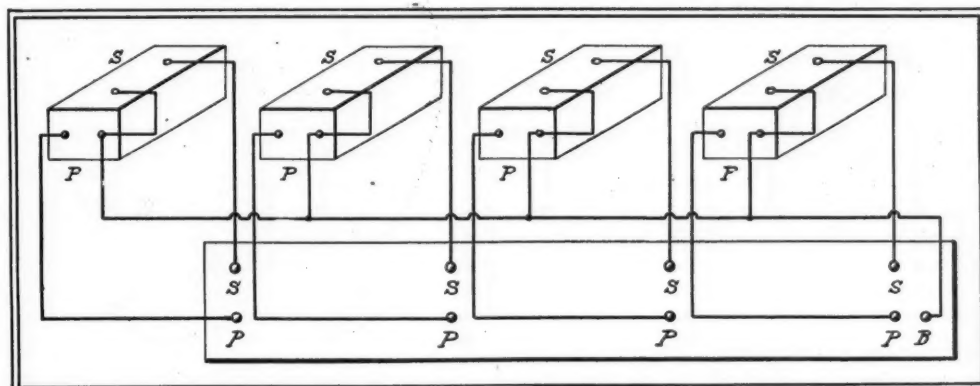
About 85 cubic feet of gas per horsepower per hour is required. Using high compression the mean effective pressure is about 80 pounds to the square inch. Limiting the piston speed to 800 feet per minute the inlet gas should have a velocity of 100 feet per second and the exhaust of 85 feet per second. The valve diameters for these proportions, where A is the cylinder diameter, B the exhaust valve diameter, and C the inlet valve diameter, are:

$$C = \frac{(A) (800)}{(60) (100)} = \frac{A}{7\frac{1}{2}}$$

or 13½ per cent of the cylinder diameter.

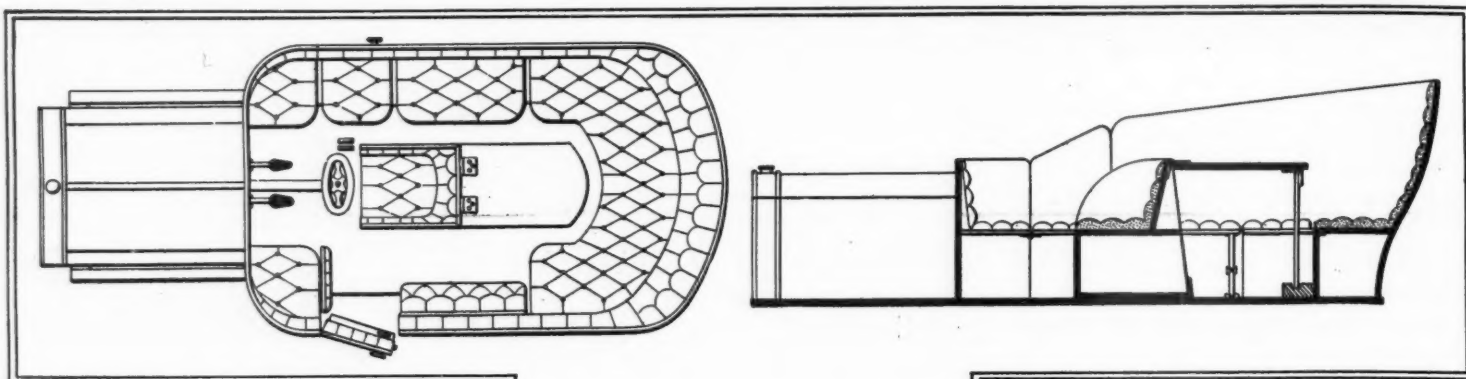
$$B = \frac{(A) (800)}{(60) (85)} = \frac{A}{6.38}$$

or 15.7 per cent of the cylinder diameter.



WIRING QUADRUPLE VIBRATING COIL

THE FIELD OF AUTOMOBILE DEVELOPMENT



CUSHION MOTOR TIRES

A clincher cushion rubber tire is the latest product of the Milwaukee Rubber Works Co., of Cudahy, Wis., which is now making the Fawkes airless tire. The clincher style is attached to standard clincher rims in much the same way as is the pneumatic and in general construction is not in any way different from the regular Fawkes tire except in the use of integral lips or flanges made of canvas and rubber and shaped so as to fit the rims.

In all Fawkes cushion tires, the manufacturer uses a V-shaped core of soft rubber, the base of the core being towards the rim of the wheel, the two prongs of the V forming the main support for all loads carried. Between the prongs is open space and on either side of the core are rubber ribs integral with the core, about an inch apart, and which serve to connect the core to the outer part of the tire as well as to add support. Around the core is wrapped a tube of pure rubber, around this is the fabric and the whole is enclosed in a thick outer covering of Para rubber, after which the tire is placed in a mould and cured. In the curing process the manufacturer claims that the four units constituting the tire are cemented into one piece, rendering it practically impossible to separate the core from other coverings.

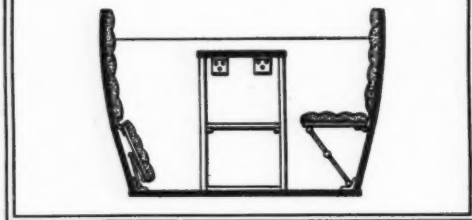
The object of using this form of core is to lighten the tire and add elasticity not obtained in the solid tire. By this peculiar construction one-half of the inside of the tire is open spaces filled with air at atmospheric pressure, and between the space within the prongs of the V and the numerous smaller ones formed by the V, the ribs and the covering of rubber, are small openings for maintaining an equal air pressure in all parts of the tire.

The advantage claimed for the V-shaped core is that it is well fitted to resist strain on the apex. With the tire the apex of the V is towards the ground and forms the point of support, thereby giving a narrow tread for the tire and offering virtually a solid rubber tire where the most wear occurs.

BODY DEPARTURE

An unique automobile body design intended to give more than usual accommodation and comfort without unduly lengthening the wheel base is illustrated herewith. It is the conception of Henry Heinrich, 5718 Kimbark avenue, Chicago.

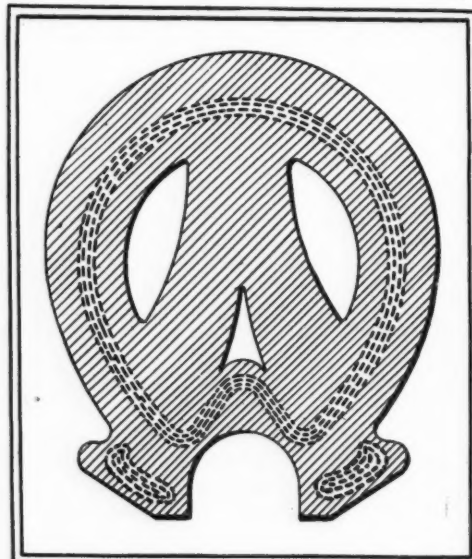
The entire seating part of the car body, in rear of the motor, resembles in shape the pit in a sailing boat, and has an entrance at each side, the operator and other parties who would ordinarily occupy the front seat in a usual



HEINRICH'S BODY DESIGN

touring car or limousine entering where the other passengers do. There is, in short, no front or rear seats, but instead all are placed around the driver's individual seat in the center and near the front of the pit. In rear is seating space for four passengers, the seats being similarly placed and equal in size to those in the rear in a touring car, and in addition to these are folding seats at the front corners of the pit and to which are hinged seats that when down occupy the door spaces but are in no wise connected with the doors, which may be open or closed regardless of the position of the seats. In rear of these door seats and at either side of the driver are narrow side seats, which in an emergency would do regular seating duty but which are primarily intended for lounging purposes during a long trip, when they would serve all the requirements of a couch to benighted tourists.

In the rear of the driver's seat is considerable open space and to the back of his seat is hinged a folding table which, when in position, will suffice for serving refreshments or luncheons, as a temporary reading or correspondence desk or as a card table. Beneath the operator's seat is ample space for storing provisions or carrying other articles.



FAWKES CLINCHER TIRE

FOR EMERGENCIES

Amateur tourists who are anxiously awaiting the delivery of their new cars and who in the meantime are building innumerable castles in the air of rural trips, records broken and difficulties conquered might do well to correspond with the U. S. Emergency Case Co., of Utica, N. Y., which manufactures a compactly packed accident case filled with everything necessary in one of those moments in which some other rather vaguely known part of the car fails to follow the would-be dictates of the amateur operator. The case is replete with human repair tools and materials, from a tiny tape for a scratched digit to a pair of scissors capable of finishing any incomplete task started by a pair of gears or a chain and sprocket. It can be carried in a coat pocket and is, in short, a useful motoring accessory.

THE DALEY CARBURETER

One of the important features of the Daley carbureter, manufactured by Walter A. Daley, 306 Opera House block, Chicago, is that the auxiliary air valve is carried on a stem which passes through the spraying nozzle so that its vertical movement keeps the nozzle free from dirt or other obstructions.

The float A is carried on a sleeve surrounding a vertical stem, on the bottom of which is the valve ball C for admission of gasoline into the float chamber. On the top of the stem carrying the float are two lock nuts by means of which the height of the float on the stem can be changed, thus varying the amount of gasoline in the float chamber and the level of the gasoline in the spraying nozzle. From the float chamber the gasoline flows through a horizontal passage Y in which is a vertical screw Z for regulating the amount of liquid flowing into the dash pot chamber S and thence through the nozzle R and pipe D to the engine.

Air normally enters through several openings E beneath the nozzle and the in-rushing air flowing past the nozzle vaporizes the gasoline and carries it to the motor. The amount of air admitted in this way is sufficient only for very limited engine speeds. For use during most of the running of the engine there is provided the auxiliary or compensating valve F threaded on the top of the stem H. This valve when closed rests lightly against its seating, being held in position by the coil spring M at its lower end, the spring resting on the screw Q so that the valve can be adjusted to open at different degrees of engine suction. Near the bottom of this valve stem is the dash pot piston J, threaded on the stem,

and near the center of this piston are several openings covered by the disk K, which is held in place by the tension of the spring N. From the dash pot above the piston and leading to that part of it beneath the piston is a side passage O, through which gasoline may flow, the flow being restricted as desired by the screw P, placed horizontally in the passage. Just beneath the valve F is an aperture guide G made integral with the throttle, the latter being at the junction of the pipe D and the mixing chamber.

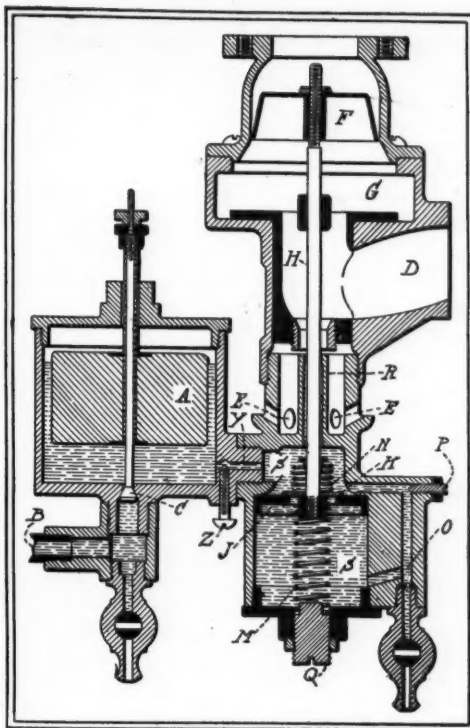
The working of the carbureter is simple in that the dash pot eliminates fluctuating of the valve F, a condition common when the valve is constantly opening and closing. With the speeding of the engine the suction increases, drawing down the valve D for the admission of more air. With the opening of this valve the piston J in the dash pot is forced downward, the gasoline beneath the piston flowing through the piston openings. As the engine suction diminishes, the valve D starts to close, but rapid movement is prohibited by the gasoline in the dash pot above the piston, as it cannot flow through the openings in the piston, for the disk K covers them and is held in place by the spring above it. This forces the gasoline to travel through the passage O, thus necessitating a gradual closing of the valve D. The time required for the closing of the valve may be varied by altering the screw P.

MOTOR CAR LITERATURE

The Hand Book of Gasoline Automobiles for 1905, issued by the Association of Licensed Automobile Manufacturers, and the second of its kind, is now in distribution. In general makeup it follows its predecessor closely, having on each page a side view of a car and a brief description of the mechanical features printed in two colors beneath it. In all, 116 cars are illustrated, eighty-one of which are touring cars, seventeen limousines of one type or another, thirteen runabouts and five commercial vehicles. The machines illustrated, most of which are of American manufacture, are sold by thirty-three different concerns and represents thirty-nine different makes. Only one racing machine is illustrated. In the back of the book are catalogue request blanks to be properly filled out and forwarded to makers. The book is useful to all buyers contemplating the purchase of a licensed machine.

The Post & Lester Co., of Hartford, Conn., in its 1905 catalogue illustrates and gives quotations on most of the new automobile parts exhibited during the show circuit. The line of carbureters is specially attractive. Other notable lines carried are tire coverings and anti-skids, tire pumps, lamps and generators, automatic oilers, spark plugs and mufflers. Several pages are devoted to hampers, which are made in sizes for most of the models of American built cars. The catalogue is well illustrated throughout and contains exact measurements and prices of all parts.

One of the pioneers in the building of lawn mowers propelled by gasoline motors is the Fairbanks-Grant Mfg. Co., of Ithaca, N. Y., which in addition to its line of two and four-cycle motors for marine use devotes considerable attention to this modern phase of the use of the explosion motor. In the company's most recent catalogue a couple of pages are



THE DALEY CARBURETER

devoted to a mower driven by a single vertical cylinder motor carried above the supporting roller, and which drives direct through a chain to the revolving cutting blades. The machines are adapted to use in country seats and such places as golf or tennis grounds, where big lawns have to be kept closely cut.

The Federation of American Motorcyclists is circulating a 1905 edition of its constitution and by-laws and rules for competition. The booklet, in addition to a code of regulations, contains a list of the officers of the organization and an application blank for membership. Though small, containing but twenty-four pages, the booklet is full of information and with it as a guide it would be possible to conduct a race meet or properly arrange a reliability test or other motor cycle contest.

The Toquet Motor Co., of New York, devotes the last few pages of its present catalogue to the general phrases used in the telegraph and cable code. In the first eight pages are shown and described the Toquet marine motors, as well as diagrams showing the installation of them in the common types of power boat.

It has been said that the art of catalogue making is found in so illustrating the pages that he who reads, or even looks, will be favorably impressed with the many pleasures attendant upon the sport. The C. H. Blomstrom Motor Co., of Detroit, in its booklet

illustrating the phases of motor boating has struck this keynote, having filled each page with composite views of hunting scenes, pleasure outings and racing competitions. Interspersed with these are numerous brief paragraphs telling of actual performances of motor boats and the cost of operation.

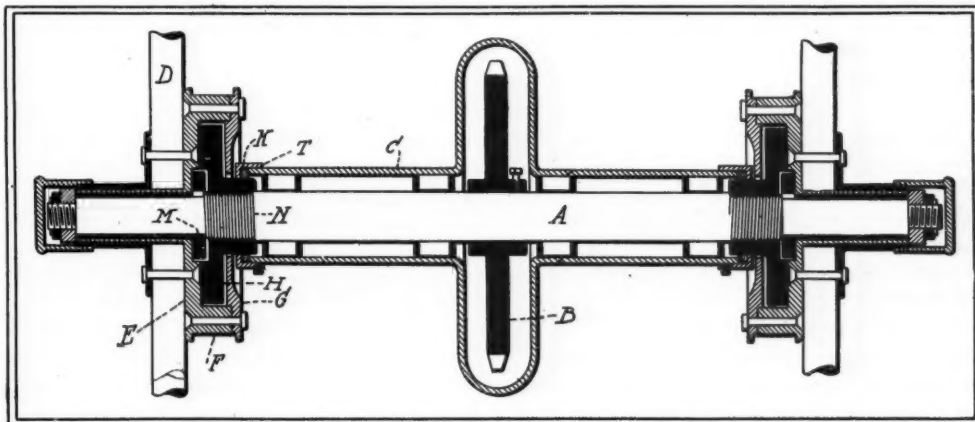
FREE-WHEEL CLUTCH

F. W. Hedgeland, 59 North Jefferson street, Chicago, is the manufacturer of a simple device for obviating the ordinary spur or bevel gear differential used on live rear axles. It is a readaptation of the solid axle and free-wheel clutch system made practical by the use of a simple, stout clutch operating both ways.

The axle A is driven by a chain through the sprocket B keyed to it, or through bevel or spur gears as desired. On the axle are short threads N near each wheel D, and carried on it is the internally threaded collar H, with a broad flange at its hub. Bolted to the inside of the flywheel D is the metal disk E, carrying at its periphery the flange F, to the outer edge of which is bolted the metal collar G. Between the disk E and the collar G is an open space partially filled by the collar H.

Each road wheel is free to rotate on the axle spindle. The inner surfaces of the plate E and the collar G, as well as both surfaces of the collar H, are slightly corrugated with radial grooves and ridges which increase the friction between these surfaces. Between the axle housing C and the small packing ring T is a packing K, pressing on the outer surface of the flange on H, the pressure being sufficient when the axle is rotated to cause H to move on the screw threads to the right or left according to the rotation of the axle A. The collar M, pinned to the shaft, is to take end thrust.

When the axle commences to rotate, through the motive power from the engine, the collar H, through the thread on the axle, is moved into contact with the plate E, thus revolving the wheel D with it, the thread on the other end of the axle causing a similar movement that its wheel may also be driven. So long as the car travels in a straight course H remains in contact with E and the wheel rotates at the same rate as the axle, but when a corner is rounded, then D, the outer wheel, at once begins to travel faster than the axle and so does the collar H, which then is moved inward from the plate E, leaving the wheel revolving free on the spindle. As soon as D slows to less than the speed of A, H is immediately moved outward into contact with E, through the influence of the thread on the axle, and the drive is at once taken up by D.



THE HEDGELAND FREE-WHEEL CLUTCH

GASOLINE—WHAT IT IS AND WHY

THE WORD petroleum is derived from petros, a rock, and oleum, oil, signifying rock oil. The reason for the applying of this name to the substance had its origin in the fact that it was first observed oozing from the rocks.

Petroleum is wonderfully abundant in nature, being found in various conditions in the earth or exuding from its surface in every country on the globe, Russia and the United States probably leading in its production, particularly the latter, where the petroleum industry has been monopolized and developed to gigantic proportions.

The name petroleum has been greatly misused both in this country and Europe, being applied indiscriminately to the native compound as it issues from the earth as well as to the various products into which it is separated by man's skill and ingenuity after it has undergone a process of purification and fractional distillation. Therefore in this article the word petroleum will be construed as having its original meaning and applied only to the compound as it occurs in nature.

Petroleum varies in color and consistency from a light straw colored limpid fluid to a black semi-fluid, tarry mass. Its specific gravity varies from .7 to 1.1. The odor due to its volatile hydro-carbons, nitrogenous, pyrogenous and sulphur constituents is peculiar and offensive to some persons. The presence of the nitrogenous and pyrogenous constituents tends to strengthen the theory that the vast stores of petroleum in the earth are the product of the combustion of vegetable and animal matter.

Petroleum consists of a series of hydro-carbons varying in point of density from the most volatile, closely akin to gas, to the heavy paraffin compounds requiring an intense heat for their separation, coupled with odoriferous and coloring matter. It may be looked upon as heavy paraffin oil and solids dissolved in limpid, volatile hydro-carbons. Purification is accomplished by decantation treatment with sulphuric acid washing and the removal of excess of acid with the aid of lime.

Tersely speaking the manufacture of commercial products is a process of fractional distillation. A suitable distilling apparatus is charged with a quantity of petroleum, heat applied and the products condensed.

The following enumeration of the separated hydro-carbons is given not in the order of their commercial importance but in the order in which each group of hydro-carbons is driven over at the various stages of increasing temperatures and condensed: Rhigolene, gasoline, benzine, petroleum, spirit, kerosene, paraffine oil, various petroleum jellies and paraffine. The residuum is called pitch, bitumen or artificial asphaltum.

Beginning with a very low temperature, 45 to 60 degrees, the petroleum is maintained at that temperature until vapor ceases to be evolved. The next step in increased temperature is then taken and so on from the very volatile, gaseous rhigolene product at the outset up to the hard solid paraffine distilled at the termination of the process. This process is known as fractional distillation. It will be observed that at the outset in this process the problem for solution is principally one of refrigerating or cooling, the petroleum being cooled to 45 or 60 degrees, an intensely cold

condensing surface being required, while at the other end of the series it is more a question of the application of heat, the paraffine condensing very readily.

The chemistry of the petroleum hydro-carbons is extremely interesting. They are homologues of olefiant and marsh gas, or are commonly expressed as belonging to the olefiant or the marsh gas series. Olefiant gas is the light giving portion of ordinary illuminating gas and marsh gas is known as natural or fuel gas, or fire damp, and burns with a blue flame. The principal difference between the two series is that the olefiant series contains a higher percent of carbon than the corresponding molecule or group of atoms in the marsh gas series.

The petroleum products belong principally to the marsh gas series. Beginning with marsh gas containing 1 atom of carbon and 4 of hydrogen, and adding successively another atom of carbon and 2 of hydrogen—building up step by step, the resulting compound differing from its predecessor by the constant addition of the same elements in the same proportion—there is formed a long series of compounds. It will be observed that as the percentage of carbon increases in this series that the density also increases, the resulting compound being heavier than its predecessor, gas, rhigolene, gasoline, benzine, etc.—a gas on one end of the series and hard solid paraffin on the other.

After the very volatile rhigolene has been driven off from petroleum at a temperature not exceeding 60 degrees, the temperature is then slowly raised to a point not exceeding 70 degrees and the volatile constituents collected. The condensed product is known as gasoline, a clear limpid, volatile, inflammable fluid, forming with air an explosive mixture, a solvent for resins, oils, etc., and used extensively as fuel or to generate energy. Its specific gravity is .665 to .69. After the gasoline has ceased to pass off, the temperature is again slowly raised to a point not exceeding 120 degrees. The condensed product is known as benzine, a clear, colorless fluid, closely resembling its predecessor, gasoline. Its specific gravity is .70 to .76. It will thus be noticed that the difference between gasoline and benzine is seemingly not very marked. In fact, some dealers say that they make no distinction, selling both from the same tank. It must be admitted that a gasoline distilled at 68 degrees would be closely related to a benzine distilled at 71 degrees, but on the other hand a gasoline distilled at 61 degrees would differ very markedly from a benzine distilled near 120 degrees.

Now, wherein lies the principal difference? That there is a difference must be admitted, particularly from an automobilist's point of view. The chief and important difference is that benzine contains a higher percentage of carbon than gasoline, its density, or specific gravity, being greater. Molecules are all of the same size irrespective of the number of atoms that they contain. The benzine molecule has a greater number of atoms than the gasoline molecule, hence it requires more air for its complete combustion than gasoline.

Naphtha is a term applied to both gasoline and benzine. Petroleum spirit is a product distilled at 120 to 170 degrees and is also called

artificial oil of turpentine. The term .68 spirit, means a hydro-carbon having that specific gravity. Potato oil and rose oil are names applied to both gasoline and benzine. Variations in commercial petroleum products arising from difference and care in distillation and the source of the petroleum have been frequently observed and recorded.

Combustion in a limited sense may be defined as the rapid union of oxygen with an element. Combustion may be complete or incomplete. The latter means waste or loss of energy. To produce complete combustion it is essential that there be free access of air. If the combustion is required to be rapid or instantaneous it is essential that the air should be intimately mixed with the substance to be consumed and in the exact and right proportions. If the substance utilized for fuel is one of the petroleum products—gasoline or benzine—two things are necessary in order to produce complete and instantaneous combustion, first the required amount of air for that particular sample of gasoline or benzine must be present, and second, the air must have intimate access to the fluid, not volume to volume, but molecule to molecule and atom to atom. The requisite amount of air to form an ideal explosive mixture with the vapor of a petroleum hydro-carbon is the amount that will convert all of the carbon present into carbonic oxide and leave no unused oxygen. If too little air is used the hydrogen will merely burn out, leaving the black carbon, no explosion resulting, or if the temperature is very high some of the hydro-carbon vapor is decomposed with a gaseous body having a low percentage of carbon and a heavy paraffine-like body containing a high percentage of carbon. On the other hand, if too much air is used and too little vapor, no explosion will result. The carbon content determines or governs the amount of air required to arouse from a dormant state to a tremendous force each kind of hydro-carbon used.

Another factor to be borne in mind in using petroleum products for fuel is that where the fluid used is of evanescent composition, consisting of several groups of hydro-carbons having different densities, and when the proper conditions are present, the lighter or most volatile constituents will pass off first, thus increasing the specific gravity of the fluid remaining in the reservoir. The same result is acquired if the fluid is agitated with air or exposed to direct sun light, the specific gravity increasing even, if the fluid used contains hydro-carbon of the same density. If kerosene is exposed to sun light and air, it absorbs oxygen, the specific gravity increases and it will not burn. Experience thus far teaches that to maintain the stability of a fluid fuel from the start to the finish any of these conditions must be avoided.

Fire test is a term used to denote the temperature at which a petroleum product will evolve vapor and continue to burn if it is ignited. Flashing point indicates the temperature at which a like product will give off vapor that will flash or explode but not continue to burn if it is ignited. There are two methods in vogue, the open and closed method. The latter is the practical one and considered to be the most accurate and reliable. The open method consists in placing some of the fluid to be tested in an open dish.

The dish is placed on a sheet of asbestos to prevent the fumes from coming in direct contact with the source of heat underneath. A thermometer is suspended in the fluid after the heat is applied. The test is made with a small flame or electric spark every minute until inflammable vapors are emitted. The closed method consists in placing the fluid to be tested in a small cylindrical vessel composed of gun metal or copper, surrounded by a water jacket and fitted with a cover provided with slide openings and a thermometer. The test is made as in the open method, every minute by pushing aside one of the slides, when a lamp fitted on trunnions will tip forward and ignite or explode the vapor, if there is a sufficient amount of the latter present. The temperature at which the vapor explodes is the flashing point for the sample tested. In the open method the flashing point would be much higher. The above methods are used almost exclusively to standardize kerosene for illuminating purposes. In order to be considered safe it is required to have a high flashing point, or, in other words, it must be entirely free from the more volatile constituents of petroleum from which it is separated by fractional distillation, the last traces of the volatile constituents being eliminated by forcing air through it.

This test has little or no practical value for gasoline and benzine used as fuel for automobiles. Errors must be guarded against or the result will be misleading. In testing illuminating oil or kerosene a high flash point is desired. The test shows that it does not contain any volatile fluid that will flash at a point below the one indicated by the test. With automobile motor fuel fluids it is desired to have a comparatively low flash point fluid. The test merely shows that a very volatile inflammable fluid is present and nothing more. It does not show that a very high test oil may be present or absent. If a little gasoline is

added to a high test kerosene the flashing point will be that of the gasoline. Therefore the flashing point of an automobile fluid will not indicate its specific gravity or carbon content, unless the fluid is protected from the air and evaporated to one-quarter its bulk and then tested.

It must not be construed that in the use of such terms as 60 degrees, 70 degrees in connection with flash point or fire test means that if a man has his automobile tank filled with gasoline or benzine branded as above and the weather should suddenly become warm and the temperature go up to 60, 70, 80 or 90 degrees, that he and his machine would suddenly vanish into thin air. The meaning is, simply, that at the specified temperatures the hydro-carbon so designated would give off a vapor or volatilize, and if this vapor came in contact with flame or an electric spark of a temperature of 1,000 degrees more or less, it would flash, explode or burn.

A subject worthy of consideration is that of specific gravity and the terms 70, 72 and 76 test, etc., as applied to the so-called gasolines in the market. Specific gravity is a comparative term, distilled water at 60 degrees Fahrenheit being taken as the standard for comparison. If a certain volume of distilled water at 60 degrees Fahrenheit weighs 100 grains, and a like volume of gasoline at the same temperature weighs only 67 grains, this would indicate that the specific gravity of the gasoline tested was .67, or, in other words, that, volume for volume, and at like temperature it is lighter than water. The terms 70, 72, 76 test, etc., applied to various market hydro-carbons are associated with considerable haziness in the mind of the average citizen. If he orders and purchases a gasoline and is informed that it is 70, 72, or 76 test, he is mystified in regard to its meaning, and frequently the dealer is unable to enlighten him. Some may contend that they mean specific

gravity and others claim that they mean the flashing point or fire test, while still others may maintain that the terms are arbitrarily used by producers and dealers alike. As a matter of fact a gasoline of .70 to .76 specific gravity is not a gasoline at all but benzine, the specific gravity of gasoline always being under .70. Lack of information on the part of dealers and consumers is inexcusable in view of the fact that for a trivial cost there may be procured an apparatus by the aid of which the specific gravity may be readily determined, obviating the necessity of taking any man's word for the density of a fluid and ascertaining for oneself whether it is a gasoline or a benzine.

The relation of the petroleum products by their specific gravities and their ratings in degrees on the Baume hydrometer is given in the following table. As gasoline is usually purchased, the gravity is that of the Baume hydrometer, the reading of which increases as the specific gravity of the liquid decreases.

	Specific gravity	Baume hydrometer Degrees
Rhigolene .....	.625	..
Gasoline .....	.665	85
Naptha, C. ....	.706	70
Naptha, B. ....	.724	67
Naptha, A. ....	.742	65
Kerosene .....	.802	45
Mineral sperm .....	.847	36
Neutral lubricating ....	.883	29
Paraffine wax .....	.848	..

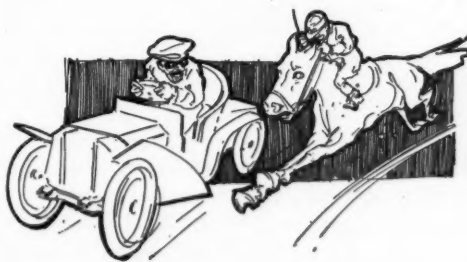
The Baume hydrometer for liquids lighter than water is calibrated as follows: At 12 degrees Centigrade or 53.6 degrees Fahrenheit the hydrometer is placed in a brine solution of 10 per cent salt and 90 per cent distilled water. The point at the liquid level is marked zero. The point at which it finds the level in pure water is marked 10 degrees, and the tube calibrated accordingly. Hydrometers can be purchased at any supply house, and carried by the operator.

THE INTERNATIONAL EXCHANGE

THERE are three countries in Europe which are often spoken of as being yet unenlightened. Two of these countries, Russia and Turkey, probably deserve these remarks, but Spain, the third, while somewhat behind the times, is far from being progressive. As far as automobiles are concerned, especially in Barcelona and Madrid, it is not a matter of social crudity which has prevented the extension of motoring, but the laziness of the average Spaniard and the bad roads of the country.

In little Switzerland, in Belgium, in Holland and in other countries larger in population and area, automobile plants have been in operation for many years. In Spain, the land which was at one time the leading nation of the world and the most advanced in sciences and arts, the first automobile factory was erected in the latter part of 1904. This concern is located in Barcelona, is capitalized for \$25,000, which it is claimed was furnished by foreigners, and is now in operation day and night. Orders for twenty-six cars have been received, and fourteen of which are to be shipped to South America. The concern makes three models, of 14, 20, and 30 horsepower, respectively, and the list prices, which do not include the body and accessories, are \$2,025, \$2,520 and \$3,425.

Most of the automobiles used in Spain are of French production, the few from other coun-



tries being insignificant. All told there may be 400 motor cars in the country, or one for every 50,000 inhabitants. A good roads movement will probably be started by the motorists of Spain. Already some of them are trying to interest city and country officials and it is planned to get the people in the country into line by showing them the benefits they will derive from good highways. Spain needs good roads more than anything else to give it new life.

Statistics recently issued by the British government again bring forth the fact that Englishmen seem to prefer foreign-made automobiles to the national products. During the first 2 months of 1905 the value of the imported cars showed an increase of \$280,256 over the value of the cars imported during January and February, 1904, although the number of cars

brought into the country was seventy-five less than last year. The average value of each of the 798 automobiles imported during the first 2 months of 1905 was \$2,135, while the average value of each of the 873 cars imported during the corresponding period in 1904 was \$1,619. On the other hand more English cars were exported during the first 2 months of the year, while their value was less than that of the fewer cars exported in 1904. During January and February, 1904, 120 cars, valued at \$240,496, or an average of \$2,004 per car, were exported. This year, during the corresponding months, 139 cars, valued at \$224,415, or an average of \$1,615 each, were exported.

MOTOR AGE has frequently commented on the promising prospects for the automobile industry in South Africa, and what has already been said is further confirmed by the announcement of the flotation of the Johannesburg & General Motor Omnibus Co., formed to operate a service of motor omnibuses in Johannesburg and its environs. It is calculated that the present available traffic will yield satisfactory returns, while future developments will probably result from the increase of population in Johannesburg and its suburbs. There is no doubt that automobile manufacturers will find in South Africa a market which fully serves their special attention.



A SUNDAY RUN DIVISION OF THE CHICAGO MOTOR CYCLE CLUB IN GARFIELD PARK

New Toll Roads—The county commissioners of Wood county, Ohio, last week sold three roads to be improved at an expense of \$100,000.

Texans on Parade—The feature of the carnival parade in San Antonio, Tex., is to be decorated automobiles, of which it is expected two score will be in line.

Tough on Gwynne—Alfred Gwynne Vanderbilt was fined \$25 in the court of special sessions of New York a few days ago for having broken the local automobile speed ordinance.

Brake Test—A Syracuse automobile stopped a runaway horse the other day by driving in front of the animal. The horse was thrown back on its haunches and made a record stop, after which he walked quietly across the street.

Third of a Gallon an Hour—John B. Kershaw, of Washington, recently broke the Washington-Baltimore motor cycle record of 1 hour 40 minutes established by Harry Parks. Kershaw covered the distance of 38 miles in 1 hour 30 minutes on an Indian machine. He used half a gallon of gasoline.

Chauffeurs Organizing—The Chauffeurs' Association of America expects to soon have a membership of 1,000. Recently President Frank Bradley was in Minneapolis and organized a branch. It is the intention of the officers of the association to establish branches in all the important cities of the country.

Expect Teddy To Talk—A good roads convention is being planned by the chamber of commerce at Lakewood, Chautauqua county, N. Y., for August 11 and 12. President Roosevelt will speak at Chautauqua Lake Assembly on one of these dates and it is the intention to ask him to address the good roads convention.

Few Guilty, Many Suffer—Among the most beautiful stretches of roadway for automobile driving in northwestern Ohio are two strips along the Maumee river for a distance of about 10 miles above Toledo on either side of the stream, but it seems some automobilists have abused the privilege of using the thoroughfares by scorching, and the farmers have gotten together to enforce speed laws stringently. The matter has been placed be-

fore the commissioners and Prosecutor Ulery, of Lucas county, will see that the regulations are enforced.

Profitable Pinching—In the police court of an English village not far from London fines aggregating \$665 were collected during a single day recently.

Not All Registered—There are now in Columbus 326 motor cars and thirteen registered motor cycles, and it is said that there are several hundred cars which have not been licensed.

Motoring Loan Shark—Joe Levy, a New York pawnbroker, wants to follow the eastern race circuit and do a loan business. He has applied for a license and if he gets one he intends to use a large motor car for the purpose, carrying a safe containing \$50,000.

All Alike to Him—Mayor Weaver, of Philadelphia, plays no favorites. A week or two ago he inspected the city's mounted police from a big White car. On Friday last he journeyed to the Phillies' grounds—where he officially opened the local National league baseball season by hurling the first ball into the diamond—in a Winton touring car.

Courtesy Pays—A long and lanky legislator from a lean and lonesome Connecticut location emerged one day last week from the state capitol on the run for the last train. A passing motorist whizzed him to the train in three jiffs. "Thanks, I'm a member of the committee on public health and safety, to whom the automobile legislation bills have been referred. We're going to increase the speed limitations in our report. First ride I ever had; good bye, and 'thanks,'" he said.

Editor Challenges—French trade papers are displeased with the campaign which is being made by the leading British papers against continental automobiles. The London Times, of London, is the leader in this campaign, which is directed especially against French cars. Paul Meyan, editor of la France Automobile, has challenged the editor of the Times to prove his assertions of British car superiority and has challenged him to an endurance test to be run in France, the distance to be 3,200 miles and the cars to seat four passengers and be built entirely in England and France, respectively. Meyan says

he will drive his own car and backs his challenge with \$2,000.

Rapid Ice Cream Service—B. Olhaver, an ice cream dealer of Aurora, Ill., uses an automobile to make deliveries to customers located in nearby villages.

Emulating Big Towns—Most of the automobiles in Kankakee, Ill., were put into service last Thursday for the purpose of bringing voters to the polls.

Price of Speeding Increases—The heaviest fine for speeding in Washington was imposed a few days ago by Judge Kimball, who made Allen Drew pay \$40 for having violated the city ordinance.

Commercial Cars in England—According to an English statistician 51,000 motor cars have been registered in England during the last 9 years, and out of this total, 3,500 are commercial and industrial vehicles.

Will Do the Drinking Himself—Emperor William of Germany is said to have engaged several new chauffeurs who are to receive higher wages than usually paid, the reason for the extra pay being that the men must be total abstainers both on and off duty.

Provincial Tour—A fortnight ago a party in a Richard-Brasier car started from Paris on a novel tour of France. Instead of making only the important cities the tourists will go through all of the eighty-three provinces of France, and according to the schedule made out will cover 5,188 miles.

Foreigners Decorated—Austrian papers complain that too many foreigners received the order of the Agricultural Merit at the recent Vienna automobile show. Among those who received the decoration were Emile Mors, Louis Renault, Tony Huber, Max Richard and de Neufville of the Decauville company.

Better than Sailors' Delight—A well-known and popular tobacco firm in Cincinnati is contracting with one of the leading automobile manufacturers for a 40-horsepower motor vehicle which will be used to distribute the Red Devil tobacco in the states of Indiana and Ohio. The car will be painted bright red and the clothes of the men in charge are to be of the same color.

Four Gallons a Century—S. F. Edge recently made interesting consumption tests in England with an 18-horsepower Napier in order to determine how many miles the car would run with 1 English gallon of fuel, which is equal to 1½ American gallons. Eight trials were made, the mileage being respectively 24½, 24¾, 27, 25½, 24¾, 26, 25 and 27 miles, thus averaging 25½ miles to the gallon.

Killed the Mayor—Klein, a chauffeur employed by the Adler Bicycle works, of Frankfurt-on-the-Main, Germany, was recently sent out to test a new car. Testers are not permitted by this concern to carry passengers. In the village of Usingen Klein stopped for a short time and the mayor and several leading citizens passing, opened a conversation with the chauffeur and asked him to let them have a ride, to which he consented. Klein took the party on the Taunus circuit, where the Bennett cup race was run last year, and while going at a high rate of speed the car dashed into a telegraph post near Marzhausen and Mayor Schmidt was killed. Another passenger was severely wounded and the chauffeur and his mechanic were badly shaken. The

car was completely wrecked. Klein was placed under arrest and will be prosecuted for murder.

New Touring Highway—One of the most beautiful roads in California, that leading from San Jose to Santa Cruz, has been opened to motorists by the board of supervisors.

Early Scorching—Joseph S. Heller, the New York agent for the Pope car, last week made the trip from his headquarters, 123 West Fifty-second street to the city hall in Philadelphia in 3 hours and 15 minutes.

Loyal to Home Products—Highway Commissioner McDonald, who is much in demand at motoring dinners recently, at Westfield, Mass., spoke at a dinner of motorists and following was taken to Springfield in a Locomobile. "This is a Connecticut made car, is it not?" asked the commissioner. He was informed that it was. "Then," said he, "go after that bunch and clean them out."

Parade and Luncheon—Owners of automobiles in the vicinity of Cincinnati have decided to have a parade Saturday, April 29, in Cincinnati. Harry Walters, chairman of the committee of arrangements, says that the interest taken is great and that 400 cars will probably line up. The parade will start at Garfield place and then go through the principal streets in the business section and finally to the race track, where luncheon will be served.

Small Percentage—During 1904, according to the city records of Berlin, fifty-four persons were killed in that city by various vehicles, not including street cars. Four were run over by automobiles, of which two were commercial cars, one a postoffice car and one a touring car. The report also shows that out of 467 persons who were seriously injured and 1,627 who were slightly wounded, automobiles

caused, respectively, twelve and fifty-seven of the accidents.

London Buys More Buses—An order for 100 automobile-buses was recently given to Scott, Stirling & Co., of Hamilton, England, by the London Power Omnibus Co., the amount of the order being \$335,000.

Set Motor Cycle Mark—A few days ago Harry Park, of Washington, established a motor cycle record from Baltimore to Washington and return. The distance, one way, is 38 miles, which was covered in 1 hour 40 minutes or at an average of 22 $\frac{3}{4}$ miles an hour. The return trip was made in 1 hour 47 minutes. Park had to dismount seven times during the run.

Buses in Mountainous Country—The Encampment Auto-Transportation Co. was recently incorporated in Encampment, Wyo., to operate an automobile transportation line between that town and Walcott. The distance between the two towns is 45 miles and it will probably require 6 hours to cover the distance, as the country is extremely hilly. The two buses made by the Chicago Motor Vehicle Co. are to be used at first.

Three Municipal Schools—In three educational institutions receiving subsidies from the city of London practical courses of instruction covering automobiles and motors are given. The instruction given at the Paddington Technical Institute is for beginners and consists of lectures and demonstration of parts. The course at the Borough Polytechnic consists of twelve lectures and practical instruction in use and operation. At the Battersea Polytechnic are day courses for drivers and mechanics. Evening courses have also been arranged. In connection with this school there is an engineering college which gives a 3-year motor course. The instruction

in all classes is practical and comprehensive of the needs of drivers, mechanics and owners, including assembling and repairing.

Thomas Flyer Abroad—Dr. Charles Van Bergen, of Buffalo, has shipped his Thomas Flyer to Europe and will follow it in a few days for a tour through Germany, France, Spain and Italy. He will be accompanied by Harry Parkin of the E. R. Thomas Motor Co.'s factory.

Frisco Wants Motor Patrols—It is reported at San Francisco police headquarters that in the near future the police department will be supplied with an automobile patrol wagon, for experimental purposes, and if the experiments prove it successful motor cars may wholly replace the horse wagons now in use.

Harkness Confirmed Tourist—Harry S. Harkness, of Mount Washington and Boston to New York run fame, who returned last week from Europe, where he toured in France, Switzerland and Italy, is preparing for a trip through Norway and Sweden. He has three cars in this country and one in Paris.

Tons of Envelopes—The government's stamped envelope works in Hartford, Conn., has just replaced three horse-drawn vehicles with a 5-ton Columbia electric truck, which conveys 3-ton loads of stamped envelopes from the factory to the government railway mail coaches on the Church street siding.

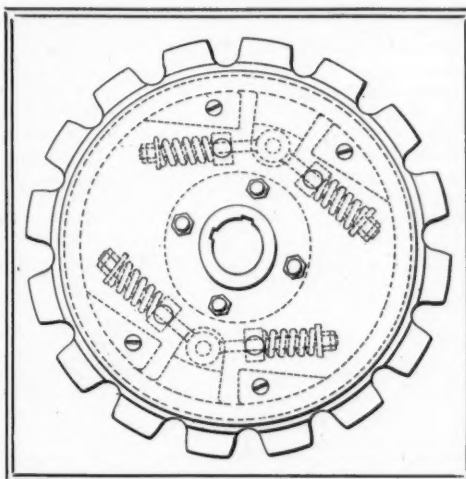
Ninety-Nine-Per-Cent "Proof"—A Schuylkill county, Pennsylvania, disciple of Blackstone, Jackson O. Haas, who is also a mechanical genius in a small way, is engaged in building a 6-horsepower automobile in his father's shop in Eldred township. He claims that his home-made car will be unique in several particulars, including "tires that are puncture-proof, slip-proof and skid-proof."

CURRENT AUTOMOBILE PATENTS

Letters patent No. 788,524, dated April 18; to Cyrus C. Mattison, of Chicago, Ill.—In this sprocket is a spring drive connection intended to eliminate jar occasioned by sudden starting. The hub is of usual size and carries two metal disks nearly equal in size to the diameter of the sprocket. Within the teeth and between these disks are fastened several wooden blocks. The rim of the sprocket carrying the teeth has inwardly projecting lugs that lie between the blocks. Pivoted on each lug are short arms that at their other ends are loosely inserted in the wooden blocks and surrounding the rods are coil springs bearing at one end on the wood and at the other against a collar on the rod. The drive is transferred from the hub to the rim through these rods and springs, the latter, of course, taking the jar.

Letters patent No. 787,495, dated April 18; to Harry M. Burnell and Millard E. Mogg, of Chicago, Ill.—In their flash generator for steam automobiles the circular coils of tubing are carried from above by a spider and U-shaped support rods that have one end secured by nut to the outer edge of the spider and the inner end passing up in the center of the coils and fastened by a nut in the center of the spider. The U-shaped rods support the tubes and clamp them together. There are also spacers between them and each tube has an upper and lower coil, the width of one being greater than that of the other.

Letters patent No. 787,491, dated April 18; to Carl W. Brackelsberg, of Dusseldorf, Germany—In a protecting tread for pneumatic tires are used two endless link chains on either side of the tire near the point at which it rests on the rim, and from each of these chains are pivoted arms that carry wooden or rubber shoes in the form of blocks that cover the entire tire tread. Each block being pivoted at each end, is free to give and take when passing over any small obstacle and at the



MATTISON'S SPRING SPROCKET.

same time renders the tire immune from punctures.

Letters patent No. 787,487, dated April 18; to Arnold Willmer Linden, of Hanover, Germany—In a two-cycle engine the inventor uses two piston pumps in connection with the engine cylinder, one pump for supplying scavenging gas to the cylinder so as to force out quickly all burned gases, and the other to force explosive mixture into the cylinder. The latter is timed to work after the former, so that explosive gases are not injected before all elements of the previous explosion have been removed. A complete valve arrangement for the inlet of air and gases is provided.

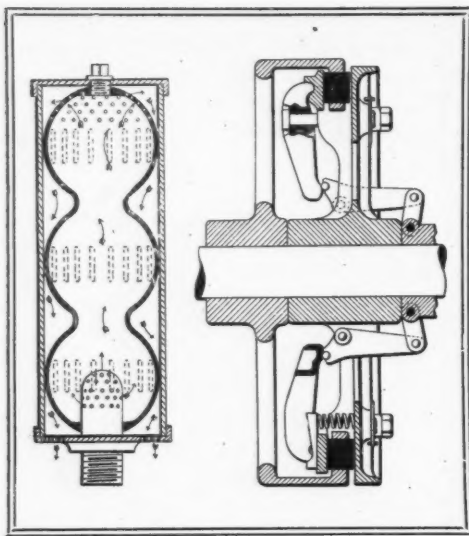
Letters patent No. 787,650, dated April 18; to Eugene T. Turney, of San Rafael, Cal.—This

speed measuring device for attachment to automobiles is of the usual dial and needle style with the latter actuated from a pneumatic bellows supplied with air from an exhaust pump driven by a road wheel of the vehicle. Between the pump and the bellows is an air reservoir which has an adjustable valve for controlling the supply of air from the pump to the bellows. As the speed of the car increases so does that of the pump, with the result that more air is drawn from the bellows, and as the bellows actuate the needle all variations in the latter are according to the rapidity of movement of the bellows.

Letters patent No. 787,581 dated April 18; to Allen Loomis, of Ann Arbor, Mich.—In his engine for automobile use the inventor uses horizontal cylinders carried on the chassis frame and within which are pistons having connecting rods attached at their other ends to a crank shaft in the middle of the rear axle, thus eliminating clutches and speed transmitting devices. In line with the crank shaft are axle spindles, each of which carries a road wheel, and also in conjunction with the axle is a differential gear.

Letters patent No. 787,658, dated April 18; to John A. Baker, of Seguin, Tex.—This relates to an induction coil containing a core of fine metal wires, and having the primary and secondary windings alternating longitudinally on the core, there being a secondary one at each end, between each primary and secondary winding are insulating disks mounted on the core, as a wheel on an axle. The primary winding is a flat metal ribbon, of one winding from end to end of the core and which is wide enough to fill the space between the dividing disks. The secondary winding is similar to that in other coils except that it is in spools on the core that alternate with each coil in the ribbon. The end spools of the secondary windings are tapered at their outer ends.

Letters patent No. 787,417, dated April 18; to



SHARPE'S MUFFLER

BROWN'S CLUTCH

Emil Westman, of Minneapolis, Minn.—In an explosive engine the inventor uses automatic inlet valves directly above the exhaust, both inlet and exhaust being in a port on the same side of the motor. The cam shaft is between the crank shaft and the valves, and carries two cams for each cylinder, one for the exhaust valve and the other for holding the inlet valve closed and for working the make-and-break ignitor, which is placed horizontally between the valves.

Letters patent No. 787,471, dated April 18; to Clayton W. Russell, of Springfield, O.—This is a tilting steering wheel for automobiles. It has a bearing at the head of the column carrying the wheel. On the top of the rod supporting the wheel is a cross piece at one end of which is pivoted one edge of the steering wheel, and at the other end of which is a recess into which fits a spring-actuated lock bolt carried in the rim of the steering wheel at a point diametrically opposite to that at which the wheel is pivoted. By pulling out the lock bolt a short distance the wheel is free to be tilted, the steering column remaining stationary.

Letters patent No. 787,860, dated April 18; to Nathan W. H. Sharpe, of London, England—In his muffler for explosive engines the inventor uses a cylindrical casing inside of which is another casing composed of spherical expansions united by narrow openings, the expansions being equal in diameter to the interior of the cylindrical casing. Gases are admitted from the engine into the first expansion of the inner casing through an orificed jet, and, after passing from one expansion to another, finally passes out of the perforated end of the last one into the space between the outer and inner casings. Where the expansions are in contact with the cylindrical casing are numerous longitudinal grooves to allow the gases to pass from one annular space to another. After passing through all of these spaces the gases exit through the same end of the outer casing as that at which they entered.

Letters patent No. 787,709, dated April 18; to Carl W. Weiss, of New York, N. Y.—Connected with the cylinder of a two-cycle motor is a pressure chamber filled during the compression stroke. The gasoline is pumped into this chamber and the pressure of air in it is used to spray the mixture into the cylinder during the suction stroke, the object of the contrivance being a positive supply of mixture.

Letters patent No. 787,600, dated April 18; to John R. Whittemore, of Erie, Pa.—This tire tread resembles in outer appearance a Samson tread, but is buckled in place by numerous straps passing over the rim of the wheel. Within a heavy leather or rubber tread are rivets with enlarged heads forming a metal tread and secured in the tread by smaller heads within the tread. Between these rivets are other overlapping ones with small exterior heads and large inner heads. The tread is thus formed with two series of rivet heads of different sizes.

Letters patent No. 787,761, dated April 18; to William A. Hollis and Hergert S. Hollis, of Hove, England—Instead of using a single tube for containing the air in a pneumatic tire the inventors use several short sections of rubber tubing which overlap at tapered ends. Each of these sections contains a valve and on the nipples of the valves

are collars attached by a one-turn thread. To these collars, and covering the nipple head, is attached a tube connecting with a valve in the rim for inflation. The air when being pumped in passes equally to all of the sections, but the valves are so devised that when one section is punctured the others retain their air and extend sufficiently to partly fill the punctured chamber.

Letters patent No. 787,530, dated April 18; to Henry G. McComb, of Ardmore, Pa.—This device is a locking pedal for operating a clutch on an automobile, so that it can be locked in any desired position. On the clutch pedal is pivoted a pawl the lower end of which engages a notch on a stationary plate, and the upper end of which carries a small toe plate which is normally an inch in advance of the toe piece of the clutch pedal, passing through an opening in it. When pressing the foot on the pedal the toe piece on the pawl is pressed back in line with that of the clutch pedal, the other end of the pawl being free of the notch. To lock the clutch the foot is turned slightly to the side, releasing the pawl toe piece but holding the other in place.

Letters patent No. 787,362, dated April 18; to Fred Fieldhaus, of Akron, O.—For attaching a solid rubber tire to the flat rim of a wheel the inventor uses two circular rings of metal with in-turned edges. One edge is intended to rest against the edge of the tire and the other against the wheel rim, one ring being on either side of the tire. Between the rings are bolts for drawing them together so that the edges of the rings sink into the tire and felloe, holding the former in place.

Letters patent No. 787,351, dated April 18; to William H. Brown, of Erie, Pa.—In this friction clutch the fly wheel carries a wide flange on its periphery and on the outer edge of the flange is a friction surface in the form of a metal ring projecting towards the hub of the wheel. Against the outer surface of this rim is a friction disk on the clutch shaft and against the inner surface of it is a friction ring working on V-shaped arms connected with bell cranks so that the disk and the ring can be brought into rigid contact with the metal ring on the fly wheel flange. Between the friction ring and the disk are coil springs to insure ready disengagement.

Letters patent No. 787,871, dated April 11; to Cornelius Callahan, of Canton, Mass.—In a force feed lubricator is an oil reservoir with a discharge port leading to several cylinders in which are reciprocating plungers. The latter are operated through a cam movement, the cam being driven through a ratchet and pawl action. All plungers work simultaneously and there is with each cylinder arrangements whereby the effective length of the stroke can be varied by changing the length of the cylinder.

Letters patent No. 787,184, dated April 11; to Edward B. Jacobson, of Pittsfield, Mass.—In an ignition dynamo for automobiles is a cylindrical casing in which the field organization forms a sliding fit. On one end of the casing, and forming the end, is the head section, carrying a bearing for the armature shaft, and on the opposite end is a web carrying the brushes and also having an armature bearing. The brushes are protected by an enclosing cap. The poles of the rotating armature are grooved at the end and the field coils surround them.

Letters patent No. 787,039, dated April 11; to Elmo G. Harris, of Rolla, Mo.—In this centrifugal pump the rotary propeller wheel is enclosed within a casing with an eccentric air inlet opening at one side, and a peripheral discharge at the other side, the pipe connecting with the discharge opening being of such size as to decrease the speed of flow slightly. Partly within the propeller casing and partly in the discharge pipe is a dividing vane or blade which is adjustable so that the amount of water sent through the discharge pipe can be varied, the remainder passing around with the propeller within the casing. The adjustment of this dividing blade is from the exterior of the casing and can be varied easily.

Letters patent No. 787,775, dated April 18; to Dean C. Lewis, of Ardmore, Pa.—This invention relates to a method of securing the wrist pin of a piston in place without the use of a screw, cotter pin or bolt, the aim of the device being to furnish a simple pin that cannot work loose. In the piston bearing is a small hole that aligns with a hole of larger diameter in the wrist pin. The pin at one end fits the larger diameter and at the other end is small enough to fit the smaller one

in the bearing, yet is short enough to be contained in the hole in the wrist pin. In the bottom of the wrist pin hole is inserted a spring which normally forces the pin outward, keeping its reduced portion in the hole in the bearing.

Letters patent No. 787,173, dated April 11; to George H. Hastings, of Oporto, Portugal—This particular design of pneumatic tire has a broad flat tread made integral with the rubber casing of the tire and within the tread is a continuous flat strip of whalebone, intended to add resiliency to the tire and eliminate puncturing. The whale bone is inserted within the tire mould and forms an integral part of the tread.

Letters patent No. 787,937, dated April 11; to Flavius J. Young, of Fort Wayne, Ind.—In his garage oil pump, intended to be used with a reservoir, is a float indicating device showing the amount of oil in the tank at any time. The plunger pump and other parts are of regular construction.

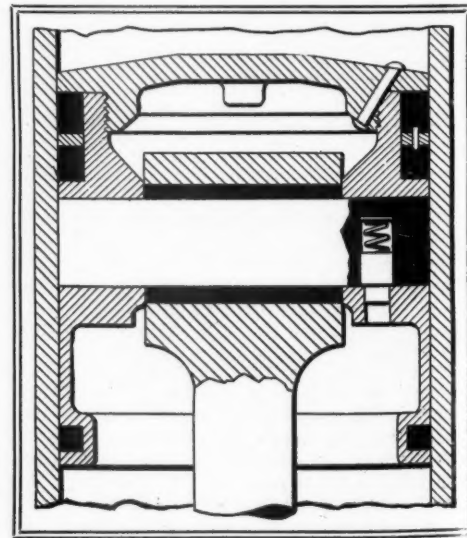
Letters patent No. 786,818, dated April 11; to Alfred Johnson, of Chicago, Ill.—This invention relates to a hand wrench in which an eccentrically curved jaw is slotted for the support of a pivoted alligator jaw that acts with the large jaw. The wrench will take active hold of any nuts or bolts the movement of the handle holding the alligator jaw against the main one.

Letters patent No. 785,606, dated March 21; to Christian A. Glasrud, of Cheyenne, N. D.—In a lubricant cup, for any large bearing, is placed a piston resting upon the upper surface of the lubricant. The plunger rod of the piston has a threaded screw that passes through a nut disk covering the top of the lubricant cup. On the disk is a plurality of ratchets with means for actuation. The downward movement of the piston is accomplished by these ratchets turning the plunger rod.

Letters patent No. 785,603, dated March 21; to John J. Fitzsimmons, of Paterson, N. J.—This invention deals with a method of attaching a rubber tire, with an outer tube and core, to the wheel. On each spoke, just beneath the felloe, is a clamp carrying a pair of arms passing around each side of the tire. To these arms are links with perforated heads, and to each head is attached a rod that passes horizontally through the center of the tire. The base of the tire rests upon the concave rim of the wheel.

Letters patent No. 785,353, dated March 21; to John S. Ebert, of New York, N. Y.—In a clutch is a threaded box with an enclosed disk having rails and guides. On the clutch shaft is a slidable collar pivotally connected with threaded radially movable jaws. The clutch shaft also carries a yoke with clutch engaging devices, the yoke being connected with the slidable collar.

Letters patent No. 785,242, dated March 21; to Walter Van Denburgh, of Melrose, Mass.—For the lubrication of axles with plain bearings, a groove is cut in the top of the axle spindle, extending to its outer end. This groove is filled with a wick which, at its outer end, connects with an oil reservoir. Attached to the wick is a metal ribbon by means of which it may be withdrawn whenever necessary. The reservoir will contain sufficient lubricant to last for several weeks of steady running.



LEWIS' WRIST PIN FASTENING

CURRENT GOSSIP OF THE GARAGES

Decatur Has Ramblers—Johnson & Landis now handle the Rambler cars in Decatur, Ill.

Northern and Orient—The Northern and Orient will be handled in Newark, N. J., by L. J. Wyckoff.

Adds the National—The Liberty Automobile Co., of Pittsburg, has taken the agency of the National in addition to the Ford and Acme.

Coey Buys Early—C. A. Coey, Chicago agent for Thomas Flyers, has placed the first order which the Thomas factory has received for a 1906 car.

Five-Story White Garage—A five-story building at 61 East Spring street, Columbus, O., has been leased by the White Automobile Co., and will be fitted up as a salesroom, garage and repair shop.

Small City, Big Garage—A garage 165 by 44 feet will be erected in Mille City, Ind., for Brinckmann Bros., who expect to have one of the largest establishments in the state. They will handle several cars, besides repairing and storing.

Bankers Get Northern—Banker Bros., who handle the Buick, Cadillac, Orient, Pierce, Peerless and Studebaker in Pittsburg, have also taken the agency for the Northern. Last week they received ten carloads of cars, being shipments from two factories.

Star Ford Agent—J. A. Cramer, of Buffalo, received on each of three successive days of last week a carload of Ford cars. Mr. Cramer's sales records for Fords last year placed him close to the top of Ford agencies. He reports that six were sold by him one day last week.

Building to Order—Parker & Son, who handle Decauville, Clement-Bayard, St. Louis and Mitchell cars in Philadelphia, are building several pleasure automobiles on private contract. A large gasoline delivery truck and several smaller delivery wagons are also "on the stocks."

Richard-Brasler Enters Boston—John Shephard, Jr., of Providence, R. I., who has taken the New England agency for the Richard-Brasler, is to establish an office and salesroom in Boston. He has secured the services of Charles Redfield Hitchcock, who is now seeking quarters in the hub.

Up-to-Date Southern Garage—With a capital stock of \$25,000 the Chattanooga Automobile Co. was recently organized in Chattanooga, Tenn. A garage will soon be erected on Chestnut street and will be equipped in up-to-date fashion. The company has taken over the business of the McKinney Machinery & Automobile Co.

Garage for Flat Dwellers—Herman Nunnemacher, of Milwaukee, is having a garage erected on Farwell avenue, near Bellevue place. This station is to be for the exclusive use of tenants of the apartment building which Nunnemacher is also having erected. Several people in the vicinity have complained that the garage will lessen the value of property in the neighborhood.

Denverites Organize—The principal dealers in automobiles and motor car accessories of Denver met last week and organized an association which will work together with the Colorado Automobile Club for the promotion of the trade, the sport and general interests of automobilism. W. B. Felker, who was elected temporary president, said that the organization will try to prevent price cutting, the extension of unlimited credit to buyers, adverse legislation and will promote races and shows.

As a Piano Mover—The Philadelphia branch of the Knox Automobile Co. gave a convincing demonstration of the merits of the company's commercial cars by delivering in Langhorne, Pa., for a local piano firm, a 1,000-pound instrument. Besides its crew of two men the truck carried three piano movers, and the round-trip distance of 53 miles was covered in a trifle over 3 hours, including the time consumed in unloading and installing the piano. The J. B. Vansilver Co., one of the largest local furniture dealers, having its factory and warerooms in Camden, N. J., has taken the initial step toward replacing its horse-drawn delivery service with motor trucks, and put two Knox wagons at work last week. The service will be gradually extended until

all the firm's heavy and long-distance hauling will be handled by Knox trucks.

Pathfinder Garage—King & Larimer, of Pittsburg, have about completed their new garage at Station and Flavel streets, East End, where they will handle the Elmore car.

Agencies Wanted—A spacious garage and repair shop has been opened by Fred Worden in Alton, Ill. He wishes to secure the agency for several popular cars. He has a repair shop in connection with the station.

Painville Quartette—Olds, Orient, Packard and Winton cars will be handled by Percy W. Tinan, of Painville, O., who recently bought the automobile business of George W. Blackmore. Tinan's place of business will be known as the Automobile Garage & Repair Co.

Seeks Hill-Climbers—Calvin T. Sherwin, of Bellows Falls, Vt., visited Springfield, Mass., and Hartford, Conn., last week looking for cars to add to his line. Cars must be capable hill-climbers and made of the right stuff to live in the Green Mountain state, says Mr. Sherwin.

Exclusively for Stevens-Duryea—The Gotham Automobile Co., metropolitan agent for the Stevens-Duryea, will establish its salesroom on May 1 at 1655 Broadway. Henry W. Wells, formerly superintendent of the J. Stevens Arms & Tool Co.'s factory, will locate in New York, and make it his business to look after the cars of Stevens-Duryea owners. It is proposed to open later a special garage and repair shop for the storage and care of Stevens-Duryea cars.

Driven from Home—S. A. Miner, the Knox agent at Hartford, Conn., and the downtown salesroom of the Electric Vehicle Co., have been located in the Batterson building, which has recently been sold for a hotel. Though both tenants had leases which ran till June 1, they have been forced to vacate, to the delight of the contractor, by the clouds of brick dust which descended upon and fixed vehicles displayed so that they had to be returned to the factories and refinished.

Haynes-Apperson in Salt Lake—August Stocker has opened a salesroom and repair shop in Salt Lake City, Utah, where he will carry a line of Haynes-Apperson cars and perhaps one or two other makes. Mr. Stocker has been in the automobile game for 7 or 8 years, making his debut in the French, German and English factories some years ago, where he passed through all the stages of the apprentice and graduated a mechanic. On coming to America he associated himself with the Olds Motor Works, where he served in the testing department, and was also on the road for some time. Since then he has been connected with the Utah Automobile Co. in Salt Lake City, and has become familiar with western automobilism, having visited all parts along the coast and central west.

Dealer Disappears—Myron C. Blackman, proprietor of the garage at 346 South Warren street, Syracuse, has left for parts unknown. There is a sheriff's notice on the door to the effect that the stock and furnishings of the concern will be sold at auction. This is not the worst misfortune that has befallen Blackman. A warrant for his arrest was sworn out by Dr. Carl Solum, who charges him with grand larceny. Investigation by the police showed an astonishing condition of affairs. One car which belonged to Rev. C. M. Eddy, a Methodist clergyman, had been sold to three different persons. Mr. Eddy thought he left it there to be stored, and was surprised when he was told that it was in the hands of a local broker, who claimed to have a bill of sale of it. It had been given out that Blackman went to Akron, O., to dispose of a detachable rim for automobiles which he had invented. A few days ago Harry Curran, who was in charge in Blackman's absence, was surprised to see Nathan Packard and a lawyer with a truckman pull up to the door and start to take out two automobiles. Before he realized what was doing they had two cars, one of which belonged to Mr. Eddy and the other to an Auburn man. Curran wanted to know by what right the cars were being removed, and the broker showed him bills of sale for the cars. Curran let them go. Dr. Solum says that he bought one of the auto-

mobiles for which Packard had a bill of sale and paid for it. He accordingly swore out the warrant.

Supplementary Garage—The H. J. Koeler Sporting Goods Co., of Newark, N. J., is having an additional garage built at 845 Broad street. It will be a three-story building 26 by 96 feet.

Columbias in Ohio—The Electric Vehicle Co., of Hartford, Conn., manufacturer of Columbia gasoline and electric vehicles, has made the Frisbie Motor Carriage Co., of Columbus, O., its agent in central Ohio.

Columbias on the Mississippi—A representative of the Electric Vehicle Co., of Hartford, Conn., recently in Davenport, Iowa, appointed W. E. Snider agent for the Columbia electric and gasoline cars for Davenport, Rock Island, Moline and vicinity.

Many Sales in Dakota—According to reports from Sioux Falls, S. D., the local trade is better than had been anticipated for this time of the year. The Sioux Falls Automobile & Supply Co. is credited with having sold seven cars in less than a week.

Elmore with Whites and Packards—Joseph A. Hill, Chicago agent for the Elmore Pathfinder, who had temporary quarters at 1354 Michigan avenue, has made arrangements to be permanently located at 1218 Michigan avenue, with the Pardee Ullman Co., agent for the White, Packard and Baker.

Deliveries in Paris—Several of the New York importers are taking orders for cars to be delivered in Paris. The Auto Import Co. has contracted to so deliver twenty Rochet-Schneider cars in the French capital. The purchasers pay the full American price and the importers pay the duty and transport the cars.

In New Stores—The Pardee-Ullman Co., of Chicago, initiated the May moving game by occupying its new building at 1218 Michigan avenue. This is one of the finest on automobile row. It is a two-story building, entirely devoted to the sale and repair of the Packard, White and Baker electric cars. The Chicago branch of the Knox Automobile Co., under the management of George E. Crane, has also been moved into new quarters, which are on the ground floor of a newly erected three-story building. The entire floor will be used for offices, salesroom and garage purposes.

St. Louis Additions—The South Side Automobile Co., of St. Louis, has opened a garage at 2339 South Grand avenue, with the agency for the Packard, Franklin, Winton and Cadillac for South St. Louis. The officers of the company are: Louis A. Hoerr, president; William R. Orthwein, vice-president and treasurer; John Hoer, Jr., secretary; Newman Samuel, manager. The Capen Motor Car Co. has just moved into a garage built especially for it at 4739 McPherson avenue. This company was organized last winter, but until now transacted its business from a downtown office. It is the agent for the Yale, Locomobile and Orient cars. The new garage is an attractive place with a two-story front in colonial style. The Macnish Automobile Co. has secured the agency for Truscott boats and motors. One side of its large salesroom is now devoted to motor cars and the other side to motor boats and engines.

Testing Power on Hills—J. A. Cramer, Buffalo agent for the Ford, Premier, Mitchell, Matheson and Marion cars, set out this week to show what could be done in the way of hill-climbing by some of his cars. He surprised the experts. The first attempt was on the Lewiston hill, near the mouth of Niagara river. That hill is not only very steep but is nearly a mile long. The exact gradient is not on record, but the hill is known as a terror to motorists. Mr. Cramer asserts that he climbed the grade on high speed in a Premier runabout. There is a bad turn at the bottom of the hill which makes it impossible to start under much headway and half way up are two bad spots caused by washouts. The car came nearly to a stop at these points, but regained its headway and finished. Today with a 12-horsepower Ford Mr. Cramer took three newspaper men up the Ferry street hill in this city, which is a favorite place for sellers of big cars to demonstrate what the machines will do on hills. The Ford went up on the high speed.

AMERICAN MOTOR LEAGUE

OFFICERS

ISAAC B. POTTER, President,
Potter Building, New York.
CHARLES E. DURYEA, First Vice-Pres.,
Reading, Pa.
W. GRANT MURRAY, Second Vice-Pres.,
Adrian, Mich.
S. W. MERRIHEW, Third Vice-Pres.,
154 Nassau St., New York.
FRANK A. EGAN, Secretary,
132 Nassau St., New York.
FREDERICK B. HILL, Treasurer,
32 Binford St., Boston.

National Headquarters
Vanderbilt Building New York



THIS LEAGUE

Is Now Collecting Route Information

covering all automobile routes in the important states and will publish road books for motor car users as fast as complete information is received. The A. M. L. is the only organization engaged in this work, and it invites the co-operation of all persons interested. For full information and membership blanks address American Motor League, Vanderbilt Building, New York City.

MEMBERS WANTED

The league wants members—thousands of them. Its ranks are swelling, but before the organization can reach its full growth and attain a strength necessary for its full usefulness, it must have a vigorous, aggressive and formidable membership—not in one state, but in all the states. The sum fixed for the annual dues for each member—\$2—is said by many to be too small—not enough to carry the work and accomplish the ends of a national organization in its pioneer days. Perhaps this is true, but a little vigorous recruiting work on the part of our members will demonstrate that it is not true. Twenty thousand members can work tremendous results and the dues of twenty thousand members will meet the expenses of a busy organization, even at \$2 per head.

The secretary is sending out membership blanks to our old members and a little thoughtful loyalty on the part of these members will bring results. One does not have to go far to find a motor car user who will gladly join the organization on the invitation of a friend or acquaintance. The country contains thousands of men who believe in the aims and purposes of the A. M. L. and who will cheerfully add their names to the membership roll if the subject is brought home to them at an opportune time. The opening of the touring season means a revival of enthusiasm and if each member will carry in his pocket a few application blanks the work of recruiting will be carried on more successfully than though the burden is left upon the shoulders of only a few.

MORE SPEED NEEDED

This heading refers to the speed of getting out road books and route information. This week the league will close arrangements with a good man in Philadelphia, one in Boston and one in New York. They are skilled and experienced draughtsmen, and know how to put together route information in a clear, correct and attractive form. A little later we shall have a man in Cleveland, one in Chicago, another in St. Louis, a fourth in Cincinnati, a fifth in Detroit, and two more in Denver and San Francisco. How shall these workers be kept busy? To copy the routes and descriptions already printed would be to copy many errors and produce results that would bring small credit to the league and small return for its effort. The league is seeking to "weed out" these errors and as fully as possible to give reliable information

and corrected maps. The secretary has sent out many thousands of route blanks, and automobilists in all parts of the country have been invited to help the organization in this work. In this way the league has secured a good many voluntary helpers—but not enough.

VOLUNTEERS WANTED

The league wants helpers in every state of the union, men who will spend a few days during this delightful spring weather in going over the most popular and attractive routes in the localities where they reside, and who will write down careful descriptions of these routes and send them—with maps if possible—to the secretary at league headquarters. There is no more interesting and satisfactory form of occupation than this work of route making. Every man who takes part in it thinks better of himself as he feels that he has done something toward the completion of a great work. Routes should be described only at the time when an actual trip is made over the road in question, for in no other way can correctness be insured. The secretary is now preparing a few pages of typewritten instructions entitled "How to describe a route," and copies of this will be sent to every helper who will volunteer to send in route descriptions.

APPOINTMENTS

The following members have been added to the list of official consultants: Eugene H. Brownell, Taunton, Mass.; William H. Phipps, Paulding.

The following named members have been added to the road committee of their respective states: Illinois, B. M. Burke, Carlinville, and H. J. Bressler, Sterling; Maine, John Sturgis, Auburn; Massachusetts, Richard P. Elliott, Boston, and Eugene H. Brownell, Taunton; Minnesota, F. C. Thornton, Benson; Ohio, W. M. McClellan, Ashland.

ORPHANS' DAY

Letters received at headquarters indicate the widest interest in the proposed celebration of Orphans' day. June 7 is the date. Hundreds of automobilists will take part in the big cities, but the cities alone will not take part in the splendid purposes of this event. In every town and county in the country will be found fatherless and motherless youngsters whose enjoyments are few and to whom the pleasures of an automobile ride on Orphans' day will live in their memories for many years.

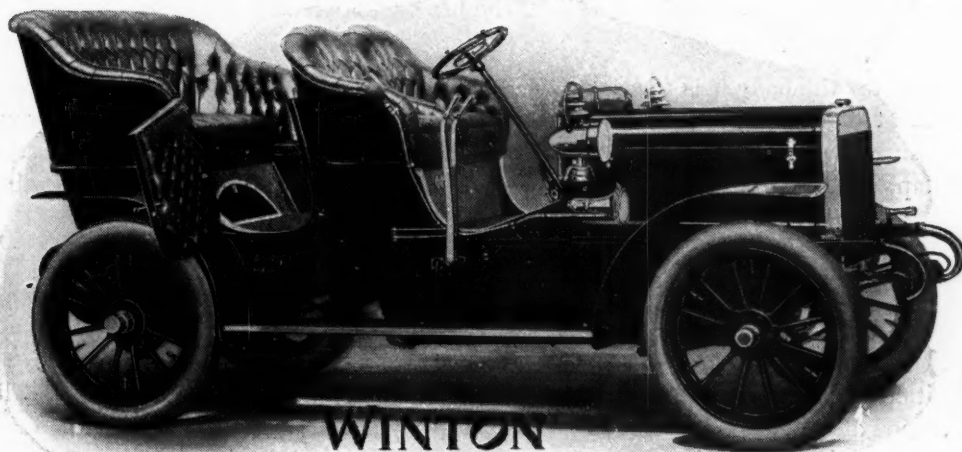
THROUGH ROUTES

Many letters are received at headquarters asking for maps and descriptions of routes between cities which are situated several hundred miles apart. A bunch of information is always sent to the inquirer, with the statement that through route descriptions and satisfactory maps are woefully lacking. The best work of the league will be to supply this information and during the present season, in addition to the compiling of route book information for the several states, the following through routes, among others, will be mapped and described: Portland to Boston; Calais to Boston via Portland; Boston to New York via Providence; Boston to New York via Springfield; Boston to Philadelphia and Baltimore; Boston to Albany via Berkshire district; Boston to Cleveland via Albany, Buffalo and Erie; Boston to Pittsburg via New York, Philadelphia and Harrisburg; New York to Buffalo via Hudson and Mohawk valleys; New York to Boston, Portland and points on Maine coast; New York to Pittsburg via Trenton, Philadelphia and Harrisburg; New York to Washington via Philadelphia and Baltimore; New York to Montreal via Hudson Valley and Lake Champlain route; New York to Chicago via Trenton, Philadelphia, Harrisburg, Pittsburg, Cleveland and Toledo; New York to Chicago via Hudson and Mohawk valleys, Buffalo, Erie, Cleveland and Toledo; Philadelphia to Washington via Baltimore; Philadelphia to Trenton, New York and Boston; Philadelphia to Harrisburg, Pittsburg, Cleveland, Toledo and Chicago; Chicago to St. Louis; Chicago to Denver; Chicago to principal cities in the east; Chicago to Cincinnati; routes from Indianapolis running to principal cities in all directions.

ROAD MAPS

Pending the time when the map work shall be complete, the league is arranging with the most reliable publishers, so that the secretary will be able to supply from league headquarters the most reliable maps now published showing routes and roads in different parts of the country. The league will shortly prepare a list of these maps with a brief memorandum of the contents of each, and the description thus prepared will be put in pamphlet form and mailed to our members in all parts of the country. In this way, the league will supply the best information now printed and will be prepared to forward maps very promptly on receipt of request. These maps are trustworthy and the accompanying information is clear and concise.

WINTON



WINTON

SUCCESS, AND THE REASON WHY

WHEN an automobile purchaser buys a WINTON, basing his expectations upon the reputation of WINTON cars and the thorough experience of the WINTON makers, he has every reason to believe that his car will satisfy his wants. WINTON success—continuing from year to year, in remarkably increasing volume—is the inevitable consequence of our proved ability to give WINTON buyers all they expect and more.

Mr. Philip N. Mainguy, of Minneapolis, states the case from the buyer's standpoint:

"I take this opportunity of expressing my entire satisfaction with every detail of my WINTON Model C. It has exceeded my expectations in every respect, and I wish to add my name to the already long list of satisfied purchasers of WINTON cars.

"I might say that previous to deciding on a WINTON, I examined thoroughly every car on the market, and, after the most exacting tests under all conditions, I found that the WINTON was in a class by itself, and that class at the top."

Five models—16-20 to 40-50 h. p.—\$1800 to \$4500
Catalogue No. 2 fully describes them all.

THE WINTON MOTOR CARRIAGE CO.
CLEVELAND, OHIO, U. S. A.

Member Association Licensed Automobile Manuf'rs
Branches in Chicago, New York, Boston, Philadelphia and London. Sales Agencies Everywhere

Rambler

The family that wants a powerful, reliable, comfortable touring car without any outlay for the latest frills in body making will get the utmost satisfaction from our Model K-2, with detachable tonneau.

Except for the body it is the same as Surrey, Type One, which in every respect is an improvement of our last season's Model K, which users admit gave a service unequaled by any machine costing less than two and three times its price, and won notable records at Grand Rapids, Rockford, Denver, Del Monte and Minneapolis in racing and hill climbing.

No machine is equal to it in simplicity and ease of operation.

There is but one lever for engaging the various speeds forward or reverse, the rest of the control being by pedals and a tilting wheel under and forming a part of the steering wheel, constantly within the reach of the finger tips as the hand guides the machine.

Ignition is controlled by an automatic governor at exactly the proper moment at all speeds of the engine at which to obtain the best results, and is far superior to any method of hand-timing yet practiced. The coming season will be the fourth it has been used, and while experimenting has continued, its superior is yet to be developed.

The working parts are readily accessible and so simple that adjustments can be made without the help of a mechanic.

This machine is being operated by many women and children.

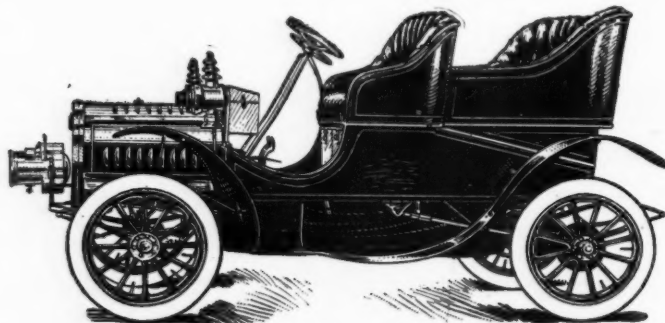
\$1250 complete with brass side, tail and gas headlight, brass horn, drop forged wrenches, oilers, pump and repair kit. Other models \$750, \$850, \$1,350, \$2,000, \$3,000.

Main Office and Factory - - - - KENOSHA, WISCONSIN

BRANCHES { BOSTON, 145 Columbus Avenue
CHICAGO, 302-304 Wabash Avenue
PHILADELPHIA, 242 North Broad Street
NEW YORK AGENCY, 134 West Thirty-Eighth Street

Representatives in other leading cities.

THOMAS B. JEFFERY & COMPANY



Model K2, with detachable tonneau

THE ROYAL TOURIST

"True Blue"



32-38 H. P.

GUARANTEED

2650 LBS.

\$4,000

Direct Flexible Shaft Drive—Free Driving Axle—Perfect Throttle Control
—Without Mechanical Governor—Positive Automatic Lubrication of Entire
Motor and Transmission—THE GREATEST H. P. FOR WEIGHT OF
CAR AND 5 PASSENGERS.

WRITE DEPT. 2 FOR CATALOG AND NEAREST AGENCY

ROYAL MOTOR CAR CO.
CLEVELAND, OHIO

All over The United States

The **FORD**

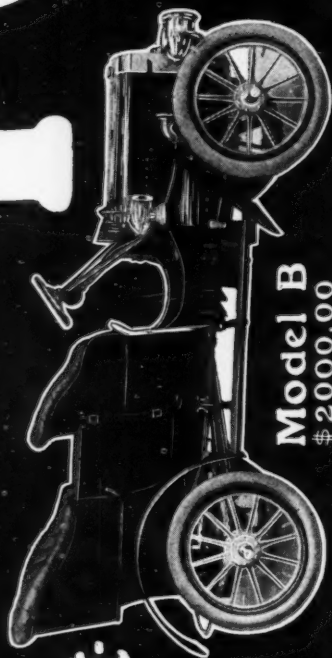
is First



Model F
\$1200.00

Don't experiment-

Just buy a
FORD



Model B
\$2000.00



Model C
\$950.00

Get a Ford
demonstration
of horse
power in
comparison
with other cars and
see the difference
between actual power
and rated power.

A Chapter on Maintenance

There is a proper relation between weight and its distribution; power and its application and the quality of material and workmanship, which together determine the cost of maintenance of an Automobile.

Let us send you a booklet giving valuable data and information on the important subject of "Maintenance" with letters from Ford users. Write for it today.

The Ford Motor Co.
Detroit, Mich.

Model C, \$950—Removable rear entrance tonneau, double opposed motor.

Model B, \$2,000—Side entrance tonneau, 4-cylinder vertical motor.

Model F, \$1,200 is a larger and more powerful car than model C, has the popular Ford double opposed motor, divided front seat, double side entrance tonneau.

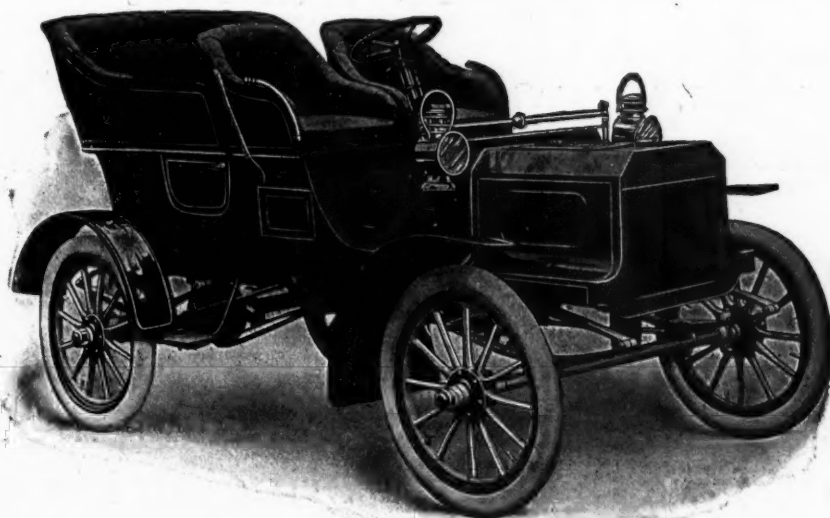
Detailed description of these models, together with our new catalogue, describing unique Ford features will be sent on request.

FORD MOTOR CO., Detroit, Mich.

Canadian trade supplied by The Ford Motor Co. of Canada, Ltd., Walkerville, Ont.

QUEEN

MODEL "E"



\$1,000.00

No equal for the price and quality.
Built throughout of best material.
Long life and easy running assured.
Plenty of power for all conditions.
Absolutely simple in construction.
All parts interchangeable-no delays.

IT'S THE CAR YOU WANT

OUR BIG CATALOGUE WILL CONVINCING YOU

C. H. BLOMSTROM MOTOR CAR COMPANY, DETROIT, MICH.

NEW YORK AGENT, C. A. Duerr & Co., 58th and Broadway.
BOSTON AGENT, F. E. Wing Motor Car Co., 66 Stanhope Street.
CHICAGO AGENT, Harry Branstetter, 1468 Michigan Avenue.
DENVER AGENT, Mathewson Automobile Co., 1420-22 Court Place.
PHILADELPHIA AGENT, The Motor Shop, 317-9 North Broad Street.

\$1,000

Oldsmobile Volunteers Wanted.

On May 8th, we will start two OLDSMOBILE STANDARD RUNABOUTS—stock cars—from New York City overland to the Lewis & Clark Exposition, Portland, Oregon.

Two drivers will be selected from those who volunteer. We will pay all their expenses on the trip, and will give the driver bringing his machine first into Portland a CASH PRIZE OF \$1000.00; the second man will receive the machine he drives.

Our Standard Runabout was the first light car to cross the American Continent under its own power, and it is, of all types of cars, unquestionably the best adapted for the present contest, which is being made in the interests of Good Roads.

The Run is timed to reach Portland for the opening of the Good Roads Convention.

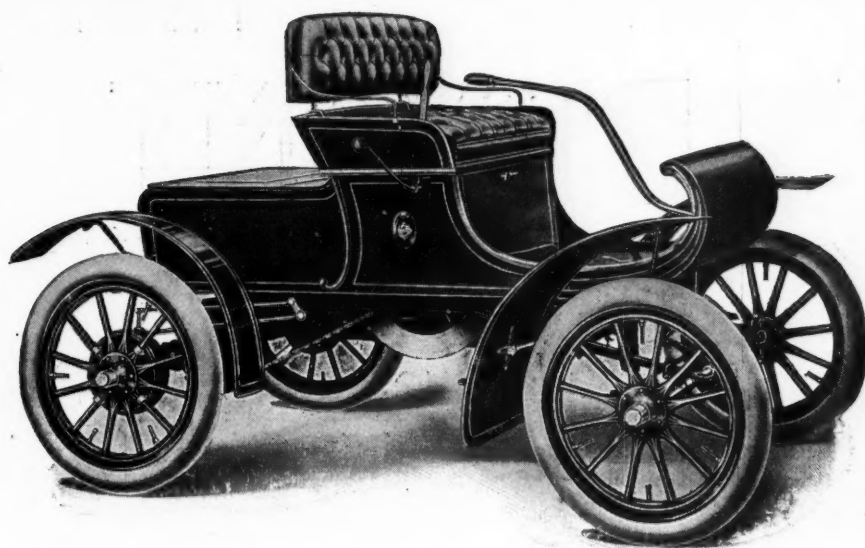
All applications should be made by wire or by letter to the

OLDS MOTOR WORKS

Member Association Licensed Automobile Manufacturers.

Dept. 52, DETROIT, U. S. A.

PRIZE



We selected this car because of the following features:—

Motor—7 h. p., fully adequate to meet the most exacting emergencies.

Best hill climber ever built.

Has fuel capacity for over 100 miles of travel.

Control is by one lever and two brakes. Nothing to confuse.

It is immensely strong. Breakages are rare, and there *is nothing to watch but the road.*

And because it has been often tried and never found wanting.

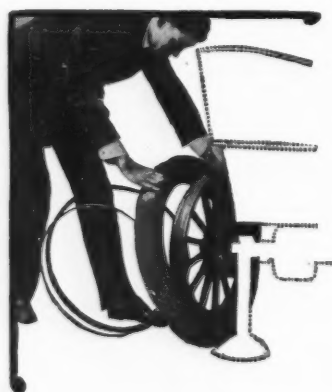
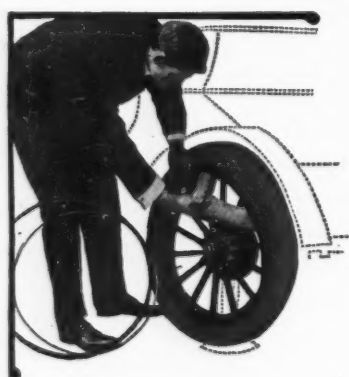
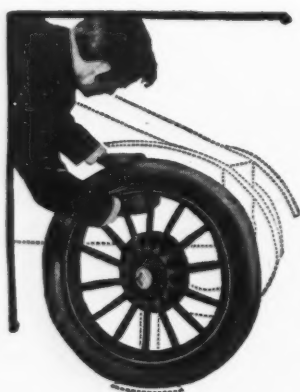
OLDS MOTOR WORKS

Member Association Licensed Automobile Manufacturers.

DETROIT, U. S. A.

Automobile "Tire Troubles"
Reduced to a Minimum by

THE BRYANT RIM



**Unique....Simple....Practical
Safe....Thoroughly Tested**

You need not discard your present tires or wheels, but by a small investment, you can equip your machine with BRYANT RIMS, and your old tires will fit like easy shoes. SIXTY SECONDS will detach any tire from the BRYANT RIM, a mechanically perfect device that solves the tire repair problem. No more nervous, swearing hours in the scorching sun or the driving rain, wrestling with an obstinate tire, but an easy sixty seconds' (one minute's) work *with your hands only*, no tools, and the tire is off. Sixty seconds more and your tire is on again, and you haven't gouged the inner tube or scarfed the bead of the tire with detaching tools. A careful study of the illustration will give you the idea.

THE BRYANT RIM

Will Fit Any Clincher Tire Now Made.

It is made to standard rim specifications, having an endless removable flange, securely held in position by a broken locking ring adapted to engage the rim channel and the removable flange.

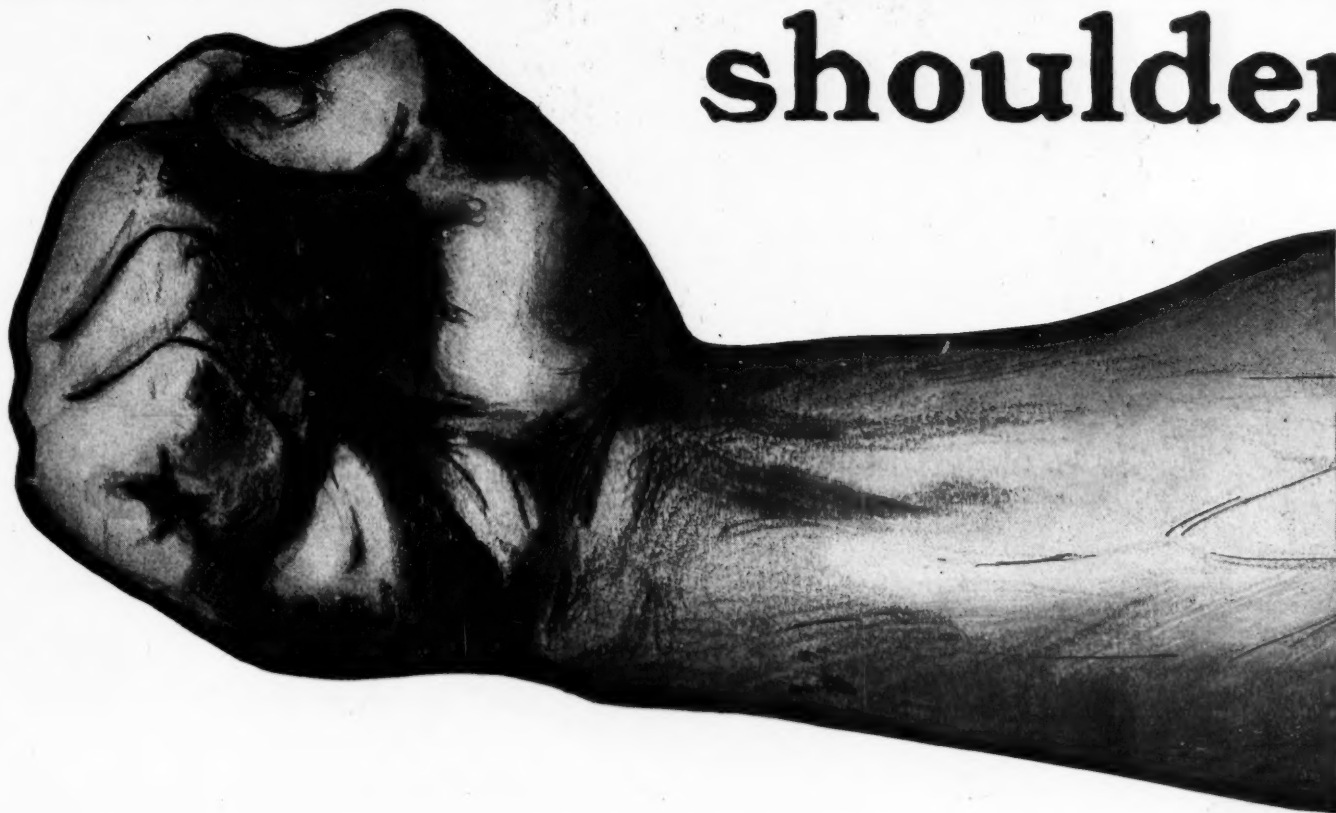
WARNING

The Bryant Rim is fully protected by patents, and dealers and users are warned against purchasing infringing devices from unauthorized persons. We have recently entered suit in the United States Courts against a Company which has been displaying and offering for sale an infringement of our *patent*, commercially known as the Universal Rim; and it is needless to say that we will follow this policy of protecting ourselves and our customers from infringers. Be sure it's "*The Bryant*."

The Bryant Steel Wheel & Rim Co.

456 Hayden Bank Bldg., Columbus, O.

Straight from the shoulder



THIS LETTER TO YOU
IF YOU WOULD
ELIMINATE YOUR
TIRE TROUBLES **READ IT**

WM. BECKER, PRESIDENT

GEO. P. MAYER, VICE-PRESIDENT

CHAS. ROHDE, SECRETARY AND TREASURER

THE MILWAUKEE RUBBER WORKS CO.

MEMBER OF THE CARRIAGE BUILDERS NATIONAL ASSOCIATION

FAWKES TIRES

Indestructible

Airless

No Pumping

No Puncturing

FACTORY AND OFFICES

RUBBER STREET

CUDAHY, WIS.

SUBURB OF MILWAUKEE

TELEGRAPH WIRES DIRECT TO WORKS
LONG DISTANCE 'PHONE SOUTH 594

TO ALL USERS OF AUTOMOBILES:—

If you would eliminate your tire troubles forever send for a copy of our illustrated booklet, entitled, "A FEW POINTS ON THE FAWKES TIRES," which we know will interest you.

The testimonials contained therein have been given voluntarily and without the use of "graft," "pull" or the workings of wheels within wheels.

Our Tires must be sold and remain sold on their merits alone, and that this can be done we are prepared to prove to you, if you will subject them to a searching investigation.

We want to call your attention to the reports spread by our competitors that these Tires will break axles and do other mean things to an automobile, to which we send a challenge for anyone to produce any make of machine that has in any way been injured because of the use of Fawkes Tires since they were built by our improved

processes, about a year ago, and we defy anyone to produce an Automobile owner who has returned to Pneumatics after once having had our Tires applied.

This is plain, broad talk, and we mean every word of it, and to prove to you how earnestly we mean it, we say to all prospective purchasers of our Tires: Return them within thirty days and get your money back, if the Tires are not as represented.

Are there many rubber Tire manufacturers who will do this? Ask a number of them and learn for yourself.

If you really are anxious to overcome your Pneumatic Tire troubles, you can make no better "Tire investment" than by purchasing the "FAWKES,"—the one and only indestructible airless Tire on the market today that does overcome these troubles.

Bespeaking your earnest investigation of the Tire, we remain,
Yours very truly.

MILWAUKEE RUBBER WORKS CO.

Rubber Street, Cudahy

SUBURB OF MILWAUKEE

WISCONSIN



**We
Make
Commercial
Vehicles
Only**

"We Deliver the Goods"

We Make Commercial Vehicles Only

and we make them much better than any other manufacturer can possibly do, with whom delivery cars are only a side line.

Agents who handle the RAPID DELIVERY WAGON have a special field that does not compete with any other line. It means quick sales and good profits to the agent who will devote his attention to this wagon. Every power wagon we make is fully guaranteed for one year.

Our Rapid Delivery Wagon—Model B

shown above, sells for \$1,250 f. o. b. Detroit. It has a strong 15 h. p. double opposed motor, that will carry over 2,000 lbs. safely and speedily.

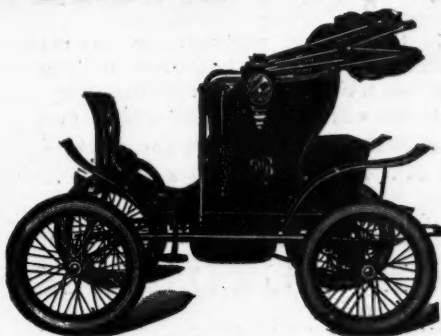
Other Models Made to Your Specifications

There is a demand among up-to-date merchants for Motor Delivery Wagons. You should be prepared to sell them. Write us today for unassigned territory. Address all communications to Pontiac office, Dept. B.

Rapid Motor Vehicle Co.
Detroit, Pontiac, Mich.

CLASSIFICATION ... WHY? DISTINCTIVE

THE LIGHTEST
THE STRONGEST
MOST DURABLE
MOST EFFICIENT
BEST FINISHED



ABSOLUTELY SAFE
PERFECTLY CLEAN
BEST TO RIDE
MOST ECONOMICAL
TO KEEP

THE BAKER ELECTRIC

Attractive in Rich Finish and Design. ✱ Simply Manipulated. ✱ Always Satisfactory.
A Carriage Any Lady Can Drive.

SEND FOR OUR B K CATALOG.

THE BAKER MOTOR VEHICLE CO., Cleveland, Ohio

Chicago Agents: PARDEE-ULLMANN CO., 1218-1220 Michigan Ave., Chicago



THE PICTURE

summer we sold a car to the Brooklyn Fire Department which gave such splendid satisfaction that the St. Louis Fire Department ordered a LOCOMOBILE as well.

C. E. Swingley, Chief of the St. Louis Fire Department, in his 15-20 h. p. four-cylinder LOCOMOBILE. Last

THE TEXT

Every 15-20 h. p. LOCOMOBILE is equipped with two headlights with separate generator, two side lights and tail light. Also horn with tubing, jack, storm covers, tarpaulin to protect the machinery, and other accessories. An unusually complete equipment of tools is furnished, together with a varied assortment of spare parts. The car as delivered is thus all ready for long distance touring. Price \$2,800, complete as above described. Body and chassis painted in accordance with customer's wishes.

"I have been in many different makes of cars and have driven same but I have yet to see a car that is better than the 15-20 that I have. There is a mountain here that is called Wilkesbarre Mountain and it is about 3 miles long and the lowest grade is 15 per cent and the highest grade is 24½ per cent. I have been up this mountain twice, once with two people and once with four people and the machine never made a skip. In fact I have done everything with this machine that I could think of and it answers every time."

AMBROSE WEST.

NEW YORK, Broadway and 76th St.
PHILADELPHIA, 249 N. Broad St.

The Locomobile Company of America, Bridgeport, Conn.
Member Association Licensed Automobile Manufacturers.

BOSTON, 15 Berkely St.
CHICAGO, 1334 Michigan Ave



TRADE MARK

We Preach Integral Construction

....as embodied in....

GOODRICH AUTOMOBILE TIRES

because we believe it is the correct method, and our reputation as tire makers is too good and our business interests too important to jeopardize by any adherence to a construction which we have not PROVEN RIGHT by actual tests of the most exhaustive nature. It is the only construction where every part—every thread of fabric—every ounce of rubber—helps to share the working strain with every other part. The tire is built as a whole—wears as a whole. No patches, no weak spots.

Equip your car with GOODRICH AUTOMOBILE TIRES

THE BAILEY "WON'T SLIP" TIRE. Regular Goodrich construction, but provided with the Bailey "Won't Slip" Tread. Prevents slipping, slewing or skidding.

THE B. F. GOODRICH COMPANY, Akron, Ohio

New York, 66-68 Reade Street and 1625 Broadway
 Buffalo, 9 West Huron Street
 San Francisco, 392 Mission Street
 Chicago, 141 Lake Street
 Boston, 161 Calumet Avenue
 Cleveland, 420 Superior Street
 Detroit, 80 East Congress Street
 Philadelphia, 909 Arch Street
 Denver, 1444 Curtis Street
 London, E. C., 7 Snow Hill



TRADE MARK



Rims branded in the channel with this copyright mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.



TRADE MARK

MICHELIN

For long tours and important races what tires are demanded? MICHELIN

It's a pleasure to have no tire troubles
 Michelin tires do not rim cut

Another pleased customer:—

E. D. WINANS, Esq., Secretary
 MICHELIN TIRE AGENCY
 6 West 29th Street, New York City

Dear Sir:—Your tires have proved so very satisfactory I have, in ordering my new car, stipulated that it shall be provided with Michelin tires. Last June I obtained from you and put on two Michelin tires complete on the hind wheels of my present car, which have been run continuously (over good and bad roads with generally five persons in the car besides other weight) since that time and as near as I can compute between five and six thousand miles. The tires have never been blown up since they were first put on, are still in good condition and look as though they might outlast the car itself.

New York, April 13, 1905. (Signed) J. E. ROOSEVELT.

E. D. WINANS
 General Manager

Telephone: 4657 Madison

MICHELIN TIRE AMERICAN AGENCY, INC.
 6 West 29th Street, New York

AGENCIES:

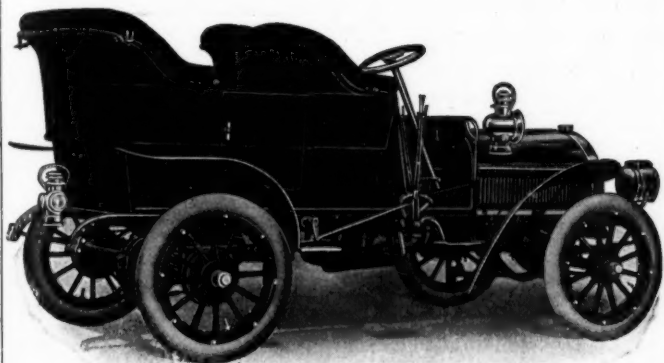
BOSTON, 751 Boylston St.
 PHILADELPHIA, 322 N. Broad St.

CHICAGO, 1461 Michigan Boulevard.
 WASHINGTON, D. C., 1330 New York Ave.

SAN FRANCISCO, 304 McAllister St.

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NEW 20 HORSE POWER FOUR-CYLINDER TOURING CAR



Price, \$2500

Our Model L Runabout, which we are marketing for its fourth successful season, has the same idea embodied in a three point support tubular frame. **We have never had one break**—an eloquent testimonial to the efficiency and manifold merits of this wise provision.

Send for beautifully illustrated 44-page booklet, describing in detail our new touring car and containing endorsements from satisfied users of our famous runabout.

The Stevens-Duryea Three Point Support

The engine clutch and transmission on the Stevens-Duryea have a three point support, two in front by supports cast from crank case and one under transmission on pressed steel cross frame. This does away with the heavy subframe and permits the shaft drive to be always in alignment, no matter how uneven the road. It thus adds more efficiency—an important factor.

The principle is the same as that of a three-legged stool—which will stand anywhere. The three point support also strengthens the pressed steel frame by avoiding the twisting strains that are apparent when a subframe is used, and the engine is supported by four or more points.

This superior feature is exclusively a Stevens-Duryea attribute of excellence.

*Ask your Auto Agent about the
Stevens-Duryea Cars—He knows*



STEVENS - DURYEA CO.

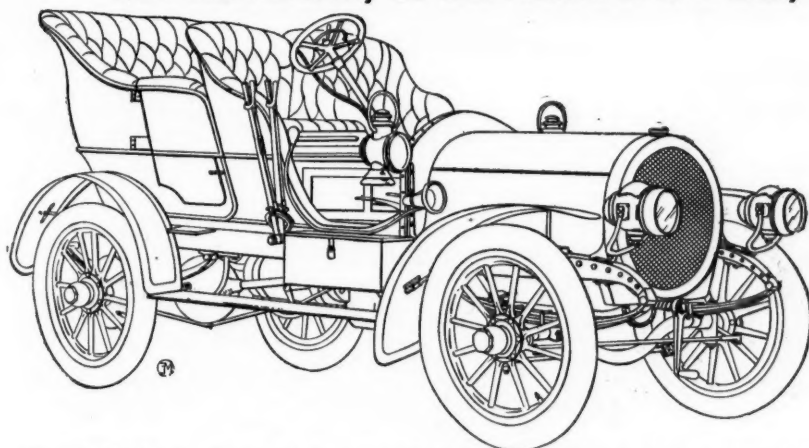
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CHICOPEE FALLS, MASSACHUSETTS, U. S. A.

Member Association Licensed Automobile Manufacturers.

National Motor Cars *“Watch for the Round Radiator”*

The individuality of the National is a daily advertisement for dealers



National Model C, Price \$2,500. 4 Cylinders, Vertical, 4 1/4 x 5, 24-30 h. p

“THE WONDERFUL HILL CLIMBER”

Quiet, easy running, simply controlled. All parts readily accessible. More features of real merit than any other touring car at any price.

Our catalogue is interesting.

Write now.

NATIONAL MOTOR VEHICLE CO.

1006 East Twenty-second Street

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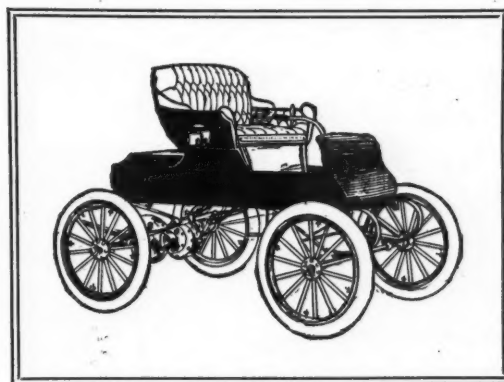
Cincinnati, O.: S. A. Hooker, 216 E. Third St.

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San Francisco: F. A. Jacobs, 1331 Market St.

Springfield, Mass.: Fowler Automobile Co.

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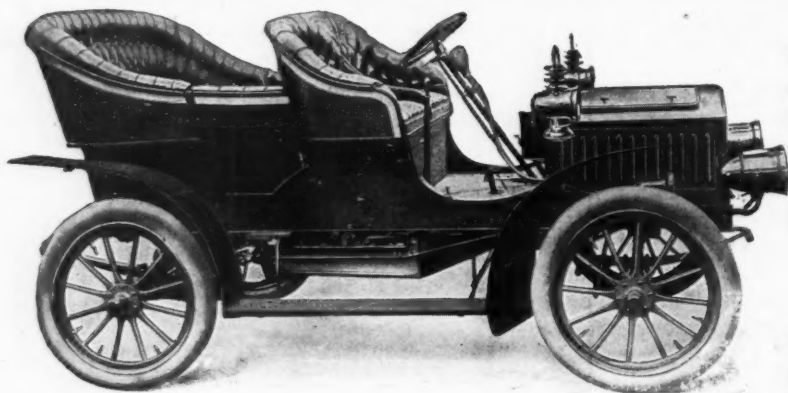
National Electric Model 50.

EVERY DEALER has certain prospective customers who are prepared to buy National electric vehicles if properly approached on the subject.

Let us familiarize you with these serviceable little Runabouts and Stanhopes.

Our Catalogue is instructive.

WHAT OTHER CAR WILL DO ALL THIS?



Where will you find an automobile that can duplicate the wonderful record made by this wonderful little car? Just think of it a moment. 6000 miles, traveled over the worst roads and in the worst weather imaginable, without a single replacement and a repair bill of only 25 cents.

Here are a few facts that make the Elmore the best two-cycle, two-cylinder car in the world:

The Elmore can be run continuously, through crowded streets, over the roughest roads, and up steep hills on the high gear.

No waste energy—Two impulses every time the fly-wheel turns—continuous application of power.

The normal speed of 25 to 30 miles per hour can be throttled to 3 miles in an instant. Same action, same excess power—greater economy, constant torque with two cylinders that others get with four, with 75 per cent less parts. In upholstering, design, make, finish and quality of material, the Elmore is equaled by none. The Elmore has the only double cylinder motor in the world which is to any degree self-starting. **THIS MEANS LESS CRANKING** with the Elmore than with any other car.

LEARN MORE ABOUT THE ELMORE AT \$1250

Send for our full line of literature, asking for group C, the booklet illustrating the 6000-mile trip, our 1905 catalogue, and the opinions of people who have used our cars—all sent free.

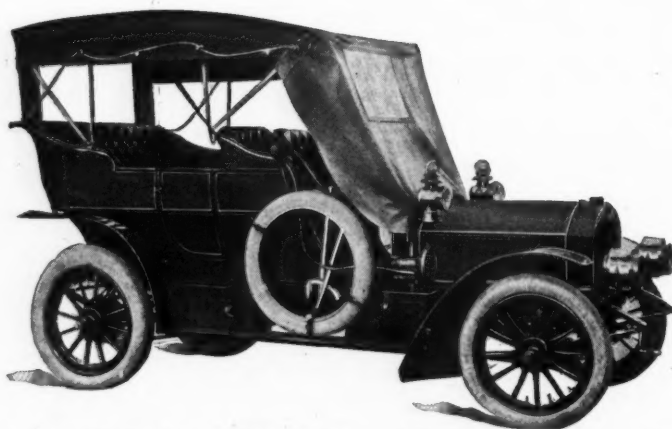
THE ELMORE MFG. CO. 804 AMANDA STREET Clyde, Ohio

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APPERSONSON

30, 40, 50 Horse-power Cars, carrying five or seven passengers.

**Open Bodies
Limousines
Full Cape Tops
Victoria Tops**



40-H. P. with Top Up and Front Curtain, and Showing Tire on Side of Car

We build a few good cars for those who want the Best.

Special cars built for those who want them

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Kokomo, Indiana**

BRANCHES:

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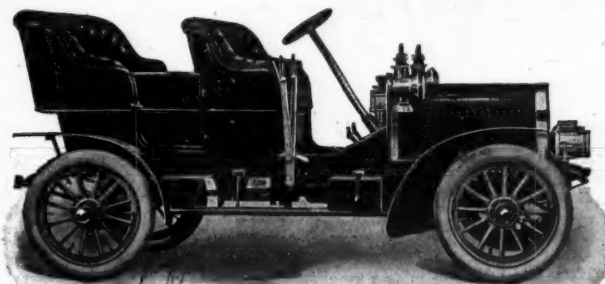
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CORBIN

CARS

The illustration shows the Corbin Model "D" which is today superior to any car at the same price and the peer of many much more costly cars. :: :: ::



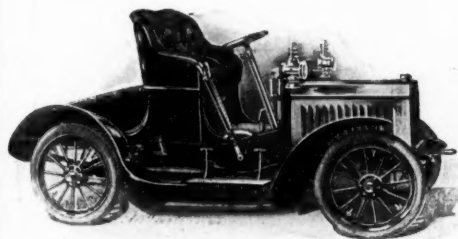
Four cylinders, 16-20 h. p. Air-cooled by Corbin System. Sliding gear transmission. Shaft drive. Pan construction under motor. Accessible, dependable, durable. :: :: :: ::

Model D—\$2,000

THE CORBIN MOTOR VEHICLE CORPORATION, New Britain, Conn.
NEW YORK AGENCY, 4 West 38th St. BOSTON AGENCY, 163 Columbus Ave.

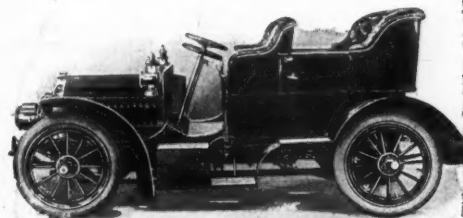
Compound MOTOR CARS

The BEST SERVICE with the LEAST REPAIR EXPENSE



12-15 H. P. RUNABOUT, \$1200

The
Quality
Cars



24-28 H. P. TOURING CAR, \$2,000

To appreciate the workmanship on our cars a visit to our factory is almost a necessity. Our enormous plant, pronounced by automobile experts, one of the finest in this country, is 1,010 feet long, contains 168,000 square feet of available floor space, and is equipped with the most modern machinery and tools for producing automobiles. :: :: ::

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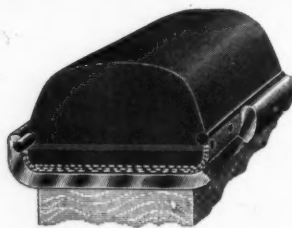
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Compound Auto Co.,
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"Firestone"



Side-Wire Tires

Years of continuous experience have made us Masters of the art of Tire-making—still with all this experience we're improving our product month by month, and it isn't to be wondered at that these tires are used by America's best factories. In fact, wherever you see a good commercial vehicle—Truck or Light Delivery Wagon—you're pretty sure to see these unexcelled Tires.

They're the choice of the critical buyer from ocean to ocean.

It's not at all difficult to become acquainted with their merits. Just call at any of our Branches—you'll soon become convinced that they are just as good as we say they are.

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Chicago

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Side Entrance Touring Car, 108-inch wheel base (Standard), \$4,000

Side Entrance Touring Car, 112-inch wheel base, . . . 4,200

Royal Victoria . . . 5,000

Double Victoria . . . 5,000

Landaulet . . . 5,500

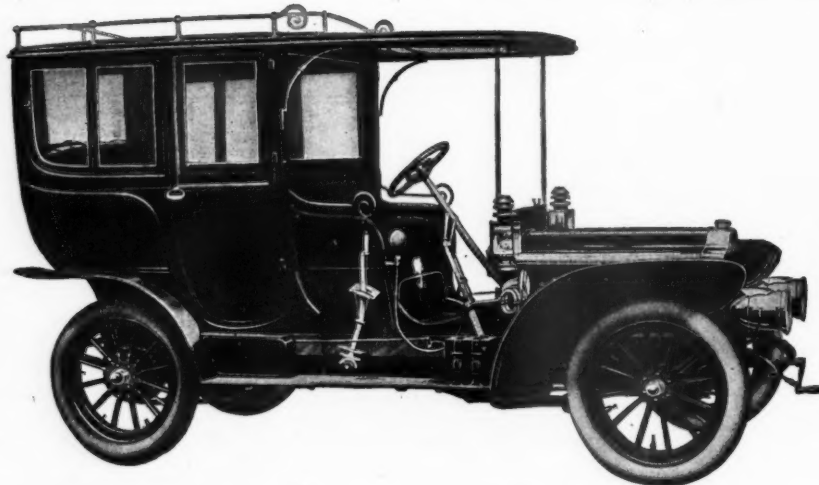
Limousine . . . 5,500

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**35-40 h. p.
CARS**

The above are the handsomest, most luxurious, comfortable and efficient cars in America, combining the most advanced application of the gasoline motor to automobile service with *COLUMBIA* style, finish, exclusiveness.

Catalogue of Columbia 18 h. p. and 35-40 h. p. Gasoline Cars will be sent on request; also special Catalogues of Columbia Electric Carriages and Commercial Vehicles.



ELECTRIC VEHICLE CO., Hartford, Conn.

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Member Association Licensed Automobile Manufacturers

STANDARD PARTS FOR POWER TRUCKS AND WAGONS

The marked economy of power wagons for delivery, express and truck service, and their superior reliability when in reasonably intelligent hands, is so well established that those who are conversant with the facts cannot fail to see that power wagons are rapidly beginning to supersede horse service.

PARTS WE SUPPLY

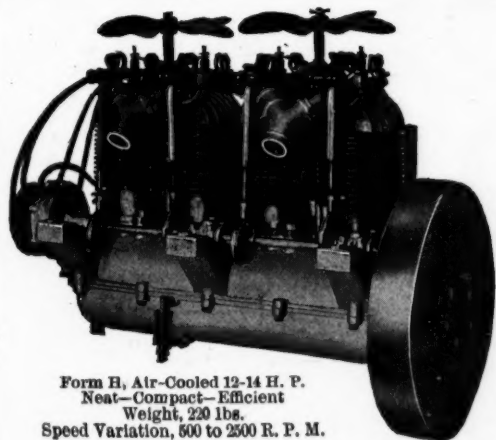
STEERING GEAR, Complete	CHAINS	COUNTERSHAFT and REDUCTION GEARS
FRONT AXELS, Complete	SPROCKETS	COUNTERSHAFT BRAKES
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Federal Manufacturing Co., Elyria, Ohio

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Form H, Air-Cooled 12-14 H. P.
Neat—Compact—Efficient
Weight, 230 lbs.
Speed Variation, 500 to 2500 R. P. M.

The best for any Auto

MERKEL AUTO MOTORS

High Speed — 4-Cylinder — Vertical — 12-14 Horse Power

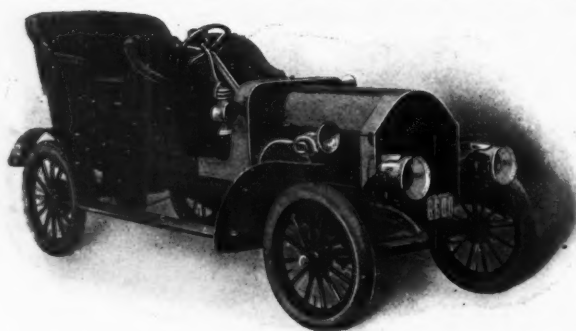
The high speed, four cylinder, air cooled motors made by us equal the higher grade water cooled motors. The advantage of air cooling is easily perceptible. This principle insures LIGHTNESS, COMPACTNESS, NEATNESS OF DESIGN, AND IS THE ONLY SUCCESSFUL MOTOR FOR USE IN COLD WEATHER. The Crank Case, Crank Shaft, Connecting Rods, Piston and Rings, Cylinders and Valves are perfection in mechanical construction.

Merkel four cylinder Air and Water cooled automobile engines can be installed in any standard frame. Why not adopt them in your present car and be in a position to give your prospective purchaser the advantage of all your other superior points of construction and the choice of either Air or Water Cooled Motors? Complete dimensions and detailed specifications sent on request. *We want manufacturers to write to us.*

MERKEL MOTOR CO. 1097 26th AVENUE **MILWAUKEE, WIS.**
Factory, Layton Park

GAS-AU-LEC

"MARKS A NEW ERA IN AUTOMOBILE CONSTRUCTION"



THE SENSATION
of the BOSTON SHOW

A 40-45 H. P. 4-cylinder, 4-cycle engine, five-passenger, side entrance, Gasolene Touring Car of the Highest Grade

WITHOUT

Starting Crank, Change Speed Gears, Clutch, Cams, Rocker Shafts, Tappets, Valve Gearing or complications.

Every movement of the motive power and the car, from a state of absolute rest, forward at any speed or reverse is controlled by one lever, operated either by hand or foot as preferred. Positively no other speed or movement controlling device of any kind on the car. Triple brakes—irreversible steering gear.

THE GAS-AU-LEC IS THE SIMPLEST GASOLENE CAR IN THE WORLD

both as to construction and control, and the easiest to operate and maintain.

NOT AN EXPERIMENT, BUT A SUCCESS. NOT A FREAK, BUT A PRACTICAL REVOLUTION

HAMILTON S. CORWIN
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PEABODY, MASS.
U. S. A.

"THE SIMPLE CAR"

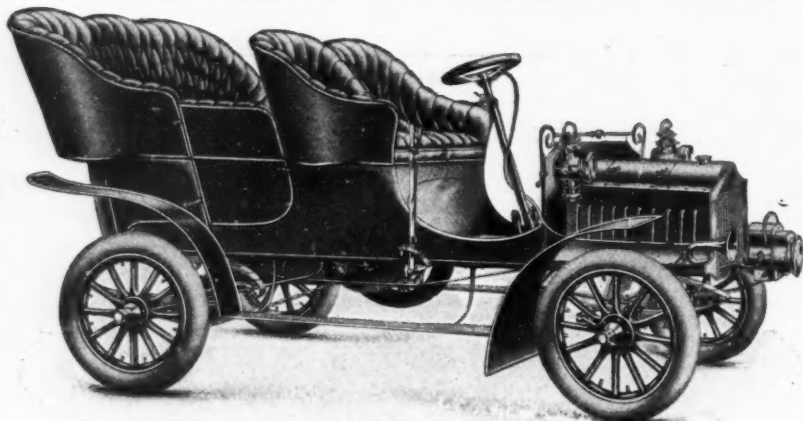
The Powerful DOLSON

The Strongest Car in
America at the Price

\$1350

COMPLETELY EQUIPPED
AND READY FOR
EXTENDED TOURING

ALL KINDS OF TALKING POINTS AND REAL MERIT



The **DOLSON** is the strongest, most powerful car in America for its price. It is a hill climber par excellence, has plenty of speed, easy of control, beautifully designed, handsomely finished and upholstered. Wheel base, 90 inches. Wheels, 30 inches. Tires, 3½ inches front, 4 inches rear. Large, roomy tonneau, seating five persons comfortably.

In design, material, workmanship and specifications, the **DOLSON** compares favorably with high-priced cars, and it is listed at a price that enables agents to sell quickly and duplicate orders. We can and will make deliveries as specified.

Don't wait too long. Get in line now
Write for further particulars.

1905 MODEL C. Price, \$1350.00

Including two oil side lamps, acetylene head light, French horn, mats, full tool equipment, ready for extended touring.

JOHN L. DOLSON & SONS, : : Charlotte, Michigan

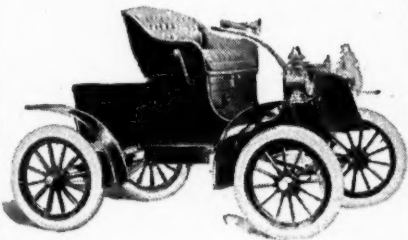
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Northern

Transmission

Sturdy Northern Runabout

7 h. p. \$650



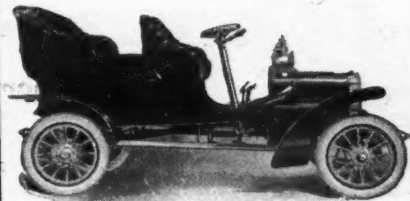
Is direct. Goes straight to the beveled geared rear Axle. Every bit of power is utilized. There is only one Universal Joint and the Transmission Gear is housed in a casing which is dust-proof and oil-retaining. This illustrates the Northern idea of construction. The shortest and most direct route to results; all unnecessary and delicate mechanism eliminated. No truss rod or strut rods, no belts, chains or gaskets.

All Northerns are fitted with an improved automatic compensating carbureter, which assures a perfect mixture at all speeds.

Write for complete Catalogue No. 14, which illustrates Northern parts in detail.

Silent Northern Side Entrance Touring Car

18 h. p. \$1700



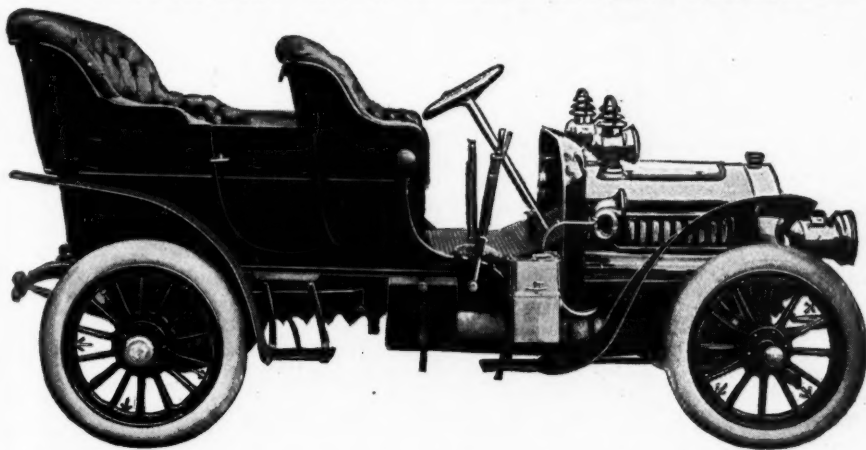
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142 W. 38th St.
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NORTHERN MANUFACTURING CO.
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STUDEBAKER

THE AUTOMOBILE WITH A REPUTATION BEHIND IT



No. 9503 4-Cylinder Gasoline Touring Car

Studebaker Quality Throughout

Write for Catalogue

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Sts.
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RELIABILITY

Is the first and foremost requirement in an automobile.

If you are looking for a "Common Sense" car — one free from freakish schemes and untried devices, then the STUDEBAKER claims your special consideration. Its integral parts have all been carefully selected and all have been assembled in a satisfactory and harmonious car of the most reliable type.

Among its many advantages is the

METHOD OF IGNITION EMPLOYED

The current is furnished by a dynamo reliably driven from the fly wheel—an original source and inexhaustible.

To make "assurance doubly sure," storage batteries are furnished, so that in case of accident to the dynamo the auxiliary current of the batteries can be immediately switched on.



NON-FLUID OILS

Do not drip and waste like the corresponding fluid oils, nor gum up the bearings and decrease the mechanical efficiency of the engine like greases.

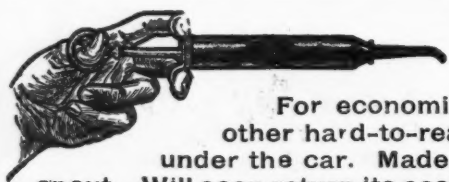
The two gravities below are most used for Automobile Lubrication
"K-No. 000"

For use in Compression Grease Cups, Differential Gear Cases, Planetary Transmission Gear Cases, Ball Bearings, Roller Bearings, Axles, Cardan Joints, Bearings of Steering Gear, etc.

"K-No. 00 SPECIAL"

Especially for use in Sliding Gear Transmission Cases. Does not throw out of the case as fluid oil does. Also for Ring-Oiling Bearings of Motors on Electric Vehicles, etc. (Does not leak onto armatures, thus prevents short circuits.)

Don't be misled by similar named goods. Insist on having NON-FLUID OILS.



N. F. O. AUTO LUBRICANT GUN

1905 MODEL

For economically and conveniently applying Lubricants in the Transmission or other hard-to-reach parts. Can be operated with ONE HAND. This saves crawling under the car. Made of EXTRA heavy gauge seamless brass tubing and has SEAMLESS spout. Will soon return its cost in oil saved and last a life time. Belongs in your tool equipment.

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79 NINTH ST., SAN FRANCISCO

N. B. If you dealer cannot supply you, write us for samples.

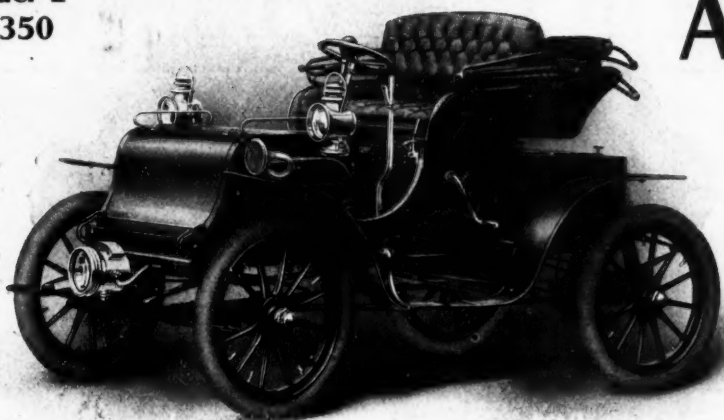
PENNSYLVANIA CLINCHER

A tire made to allay some of the troubles of the man behind the wheel.

A tire which will be the last part of the car to need repairs.

PENNSYLVANIA RUBBER CO.
JEANNETTE, PA.

Model L
\$1,350



A Trouble-Saving Car

The "Haynes" is so simple—so easy of operation—so sure of control—so hard to get out of order—in short, so mechanically perfect that you don't have to be a chauffeur or mechanic to run it. It relieves you of anxiety and trouble, giving you the maximum of comfort and enjoyment.

Its shaft drive with "Haynes" sprocket and roller gear is more direct, powerful and responsive than dirty, rattling chains with

breaking links, or bevel gears with lost motion and wedging, from uneven wear.

No flaws—no makeshifts—no untried experiments in "Haynes" construction.

The "Haynes" is a 12-year development.

Model K—A five passenger touring car, 35-40 h. p., four cylinder, 108-inch wheel base, 34-inch wheels, 4½-inch tires, **\$3,000.**

(Victoria or Folding Extension Top, \$200 extra.)

Model M—16-18 h. p., two cylinder, side entrance tonneau, 81-inch wheel base, 32-inch wheels, 3½-inch tires, **\$1,500.**

Model L—16-18 h. p., two cylinder, two passenger, with folding front seat, 81-inch wheel base, 32-inch wheels, 3½-inch tires, **\$1,350.**

We have a catalog for you. ... Send for it.

THE HAYNES-Apperson CO., Kokomo, Ind.

NEW YORK

Member Association Licensed Automobile Manufacturers.

CHICAGO

The WALTHAM-ORIENT SELLING SYSTEM

We assume that the thing you are most interested in just now is selling.

We assume that you are willing to part with as many cars and annex as many dollars as the public demand will allow.

Maybe you realize, as we do, that stimulation of that demand is going to increase your sales—and your profits.

You are handling the cars of one or more manufacturers. What are they doing to help you sell?

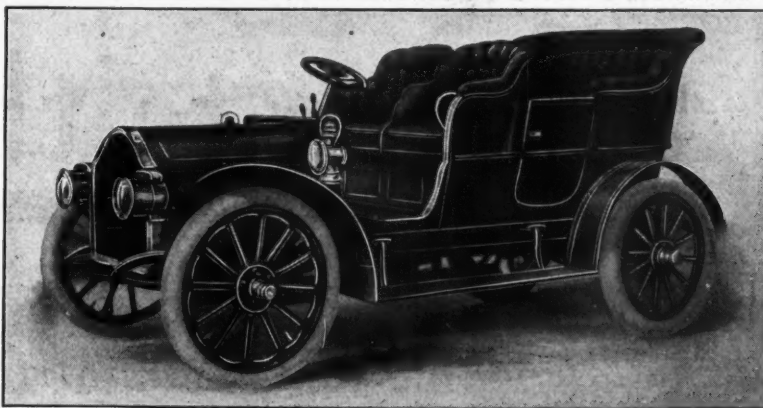
Some magazine advertising perhaps—we do that.

And some catalogues—we do that. And some circulars and hangers—we do that, too.

But what are they doing to actually stimulate demand in your territory—to actually bring you sales.

We do that.

Next to the Waltham-Orient cars, the Waltham-Orient Selling System is the most important development of this season.



Waltham-Orient, Model de Luxe, 20 h. p., \$2250. Positive Air-cooled

It sells cars.

It goes after every possible buyer in a given territory, stirs the motor fever in his veins, and brings him to the Waltham-Orient dealer first.

It works with the dealer till the sale is clinched.

You ought to know about it.

You may if you'll write.

WALTHAM-ORIENTS

Model E, Touring Runabout, with semi-racing body,	16-H. P., \$1500
Model E, With Detachable Tonneau,	16-H. P., 1650
Model F, Light Touring Car with Tonneau,	16-H. P., 1650
Model G, Touring Car,	20-H. P., 2000
Model de Luxe, Touring Car,	20-H. P., 2250

ORIENT BUCKBOARD LINE

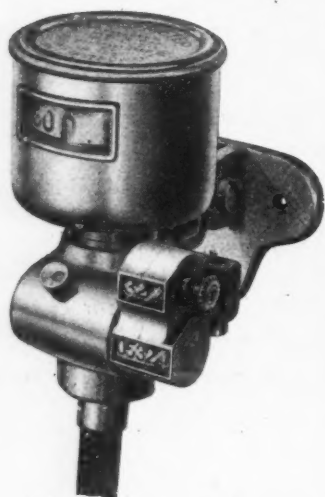
Buckboard, Model A,	- - - - 4-H. P., \$375
Surrey, Model B,	- - - - 4-H. P., 450
Runabout, Model C,	- - - - 4-H. P., 475
Tonneau, Model D,	- - - - 4-H. P., 525

WALTHAM MANUFACTURING COMPANY

Gen'l Sales Offices, 44 Broad St., NEW YORK CITY
Factory, : : : : WALTHAM, MASS.

Members of Association of Licensed Automobile Manufacturers.

"HOW FAST AM I TRAVELING?"



AUTO METER—EXTERIOR VIEW.

Built like a chronometer, and as indispensable as one. Magnetic force is its motive power, and as it works independently of weights, liquids or air, it is not subject to the law of centrifugal force. Absolutely even scale. No pivots nor joints to wear out and impair accuracy.

¶ The everlasting question in the motorist's mind is the one regarding "speed."

¶ Without accurate means of registering speed, no man can well approximate the rate at which he is traveling in an automobile.

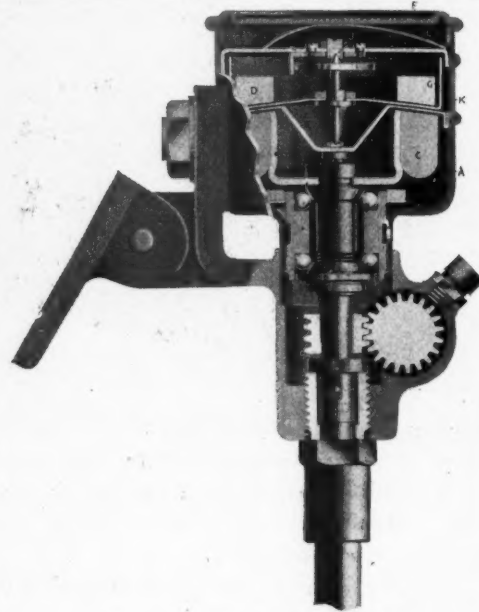
THE AUTO-METER

Answers the questions and does it so precisely that whether the speed is one mile or 100 miles per hour, the rate is plainly and steadily shown upon the indicator.

¶ Because of the proven positiveness of its principle of operation, the Auto-Meter

CANNOT GO WRONG

¶ Send for *Proof* from thousands of users whose praise of the WARNER AUTO-METER *must* convince you of its sterling value.



AUTO-METER—INTERIOR VIEW

Internal parts are gold plated. This is not done to please the eye—for the user never sees the inside—but to add to the durability. It is a contribution to cleanliness, and a preventive of corrosion.

NEW YORK
OFFICE:
39 Cortlandt
Street

WARNER INSTRUMENT CO.
55 Roosevelt Avenue
BELOIT, WISCONSIN

BOSTON
OFFICE:
143 Federal
Street

Notice to the Trade

We have entered suit against the United States agency of the Michelin Tire Co. for infringement of G & J Patents, and the trade is warned against the purchase of such tires.

The following manufacturers are licensed under G & J patents:

Hartford Rubber Works Co.
The B. F. Goodrich Co.
Diamond Rubber Co.
Morgan & Wright
Fisk Rubber Co.

Continental Caoutchouc Co.
Goodyear Tire & Rubber Co.
International Auto & Vehicle
Tire Co.
India Rubber Co.

G & J TIRE CO., MAIN OFFICE AND FACTORY **Indianapolis, Indiana**



Thread Fabric Tires

The easiest tires in the world to handle.
They can be removed from the rim and replaced
again in less time than any other tires.
We use no tire clamps.

No clamps to interfere
No pinched tubes
No edge cutting
No blistering
Most durable

The G & J Tire

for 1905 embodies all the requirements of the
perfect tire.

Catalog on request.

G & J TIRE Co.
Indianapolis

CHICAGO
429 Wabash Avenue
DETROIT
247 Jefferson Avenue

DENVER
1528 Court Place
BUFFALO
9 West Huron St.

BOSTON
43 Columbus Avenue
CLEVELAND
357 Huron Street



Rims branded in the channel with these copy-
righted marks have been inspected and pro-
nounced perfect. We guarantee our tires on all
rims so branded.



THE INCOMPARABLE WHITE THE CAR FOR SERVICE

White value is possibly not so widely known and recognized as White merit. By "value" we mean maximum return for every dollar invested in a White car. In the editorial section of Bulletin No. 8 we discussed the reasons why we can give so much for \$2500, the Cleveland price of the White car. The principal reason is the high efficiency of our manufacturing plant—the result of long experience, of careful designing, of large output, and of perfect organization.

If you did not read this section of Bulletin No. 8 it would be worth your while to turn back to it. If you are still without this Bulletin, write us for it today.

WHITE Sewing Machine **COMPANY**

Cleveland, Ohio.

IS THE CADILLAC AGENCY A PROFITABLE PROPOSITION?

Down in North Carolina there is a town where every owner of an automobile but one (a Cadillac) is an "agent." The dealer who handles the Cadillac has had hard "sledding" against this kind of competition, but conditions are changing. Buyers are beginning to realize that discounts don't mean efficiency or a saving in the long run. Here's what one Cadillac buyer has to say about it:

WINSTON, N. C., Apr. 1, '05.

"I doubt if your product has ever received a greater compliment than in the placing of this order.

I have investigated various machines for several months without reference to price. I turned down an agency commission on all others and paid the Cadillac dealer his commission in order to get your machine. It is to me a marvel of simplicity and power. After looking one of your machines over thoroughly it seemed so simple that a child could almost understand and operate it, and yet when taken on the road the power your little engine develops is beyond comprehension. Every claim you make is more than substantiated. The Cadillac is certainly the car of all others for economy, simplicity and ease of maintenance."

(Signed)

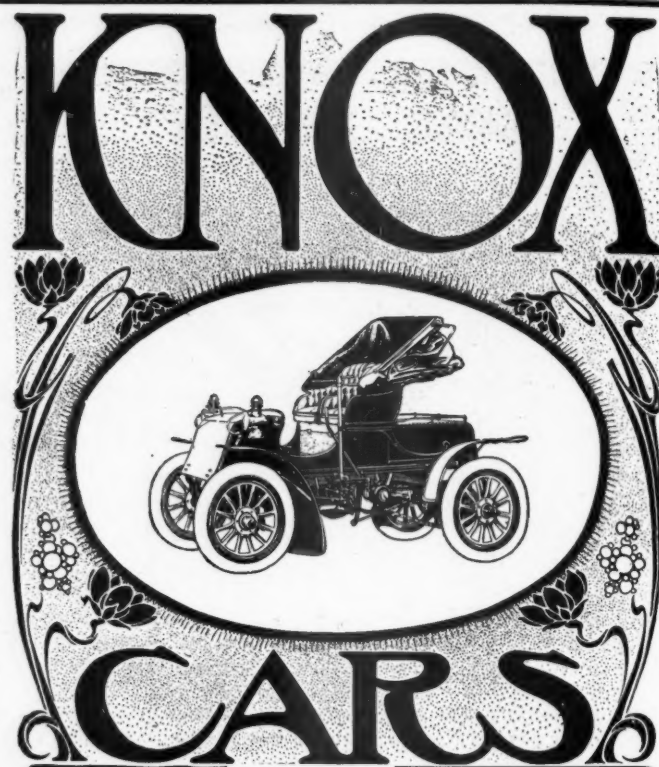
CHAS. L. SUMMERS, M. D.

Again we say, the Cadillac agency is a valuable asset. No good dealer can afford to let his competitor have it.

Cadillac Automobile Company,

Member Association Licensed Automobile Manufacturers.

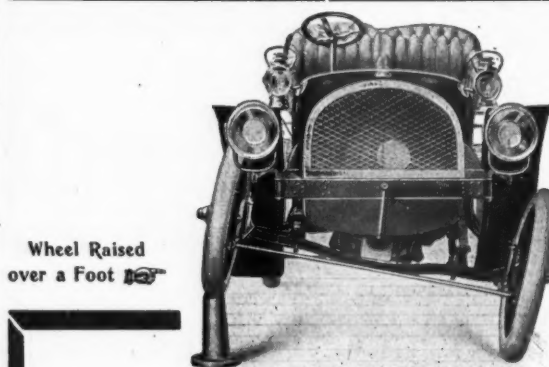
DETROIT, MICH.



KNOX MODEL "F-1," RUNABOUT Two Cylinder Folding Front Seat

Something that surpasses all your preconceived notions of what a runabout ought to be. Certainly the highest type ever shown. Strikingly rich in every detail and reliable as gold. The doctor's preference. **Price, \$1,500.** Send for catalog describing full line of pleasure and commercial cars.

KNOX AUTOMOBILE CO. SPRINGFIELD, MASS.
Members Assn. Licensed Automobile Mfrs.
Agencies in all principal cities



Wheel Raised
over a Foot

Body Level

THE MARMON

"A Mechanical Masterpiece"

This picture shows how the Marmon meets a most exacting test of flexibility—without compressing its springs and without the least tendency to raise any one of the other three wheels. No other car can do it, for the reason does not lie in springs, but in an exclusive Marmon feature,

DOUBLE THREE-POINT SUSPENSION

Cast aluminum body on one frame, simple accessible oil-tight mechanism on another frame, each suspended on three pivotal points. Eliminates the binding and twisting strains inevitable in the customary rigid four point suspension; hence means fewer parts, longer life and greater efficiency. The gentle sway of the Marmon body over the roughest roads is unknown in any other car.

Rigid shaft drive, without Cardan joints; quiet, unique, air-cooled motor; positive automatic force lubrication that absolutely marks the end of oil troubles. Booklet No. 1 describes it.

NORDYKE & MARMON COMPANY
Established 1851 Indianapolis, Indiana

To those who have been worn out by the physical torture of using crow-bars, pick-axes and "surprising language" in the strenuous endeavor to manipulate other types of tires, the mechanically fastened tire method most strongly appeals. Trouble, labor and vexatious delays are reduced to a minimum.

Do not, however, allow the strong points of simplicity of operation to overshadow the questions of safety, riding comfort and economy.

Fisk Mechanically Fastened Tires

are the only auto tires made that embody the three essential tire qualifications

POSITIVE LOCKING DEVICE

Incorporating a life preserving principle which makes it impossible for the tire to fly off the rim whether it be inflated or not.

AIR ALL ABOVE RIM

Giving you the advantage of all the air where it is most needed as a cushion. Air is essential to comfort.

FIRST QUALITY AND CONSTRUCTION

Built so that you can rely on them for hard service and so they will last.

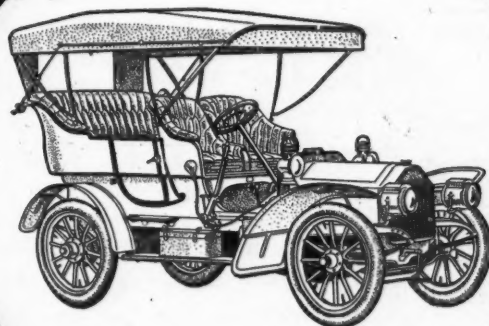
You Can Have Them for the Asking.
See That They Are on Your Car.

The Fisk Rubber Co.
CHICOPEE FALLS, MASS.

BRANCHES:

Boston, 226 Columbus Ave.	St. Louis, 3908 Olive St.
Springfield, 40 Dwight St.	Omaha, 1116 Farnum St.
New York, 754-756 Seventh Ave.	Kansas City, 1330 Main St.
Philadelphia, 828 Arch St.	Minneapolis, 704 Hennepin Ave.
Atlanta, 103 N. Pryor St.	Denver, 1533 Glenarm St.
Syracuse, 423 So. Clinton St.	San Francisco, 114 Second St.
Buffalo, 893 Main St.	Los Angeles, 1034 So. Main St.
Cleveland, 318 Euclid Ave.	Montreal, 1034 So. Main St.
Detroit, 262 Jefferson Ave.	London, Canada.
Chicago, 1251 Michigan Ave.	England.

Peerless
**THE
CAR of
ACHIEVEMENT**

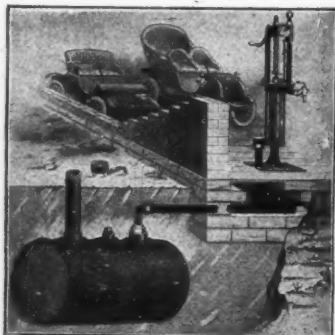


PEERLESS CARS ARE "TUNED UP"

Before a Peerless Car can be shipped to a customer it must do more than merely run well. It must be adjusted till it is mechanically perfect and runs like a watch. Just as the best watch will not keep good time till it is regulated by an expert, so an automobile needs to be thoroughly "tuned up" before it can realize its maximum of efficiency.

One reason Peerless Cars run so perfectly is because they are so skillfully "tuned up."

Peerless Motor Car Co.
Cleveland, O.



The Bowser Long Distance Gasolene Storage System—Tank Buried—Pump in Building.

Established
1885

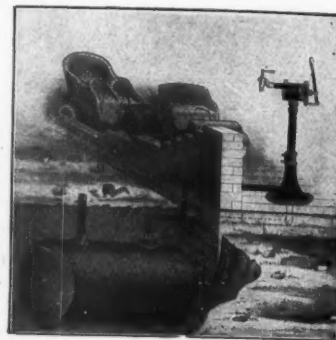
BOWSER GASOLENE TANKS

Over 200,000
in use

We manufacture Gasolene Storage Outfits—all kinds. Self-measuring Outfits for Garages; smaller, less expensive ones for private automobilists. If you use any quantity of gasolene no matter how small—you will find in our catalog a tank exactly suited to your purpose. We shall be glad to mail you our catalog. It was prepared for YOU. Your request carries with it no obligation. It simply indicates your willingness to investigate the most complete line of tanks ever offered gasolene users. Ask for Catalogue XV.

S. F. BOWSER & CO., Inc.
FORT WAYNE, IND.

Eastern Office, 255 Atlantic Ave., Boston, Mass.



Bowser "Little Giant" Gasolene Outfit

The Von Schwarz

None Genuine Without
J v S
on Tip and Pillar

Acetylene Burners

SOME ADVANTAGES

They are Recognized Standard Burners the World Over

Accurate in consumption. Free from carbonization and other troubles, and they are

Licensed under Patent 589342, August 31, 1897. This patent has been adjudicated by the U. S. Court of Appeal and is VALID.

We advertise not only our burners, but also those firms who confine themselves to equip their lamps with **Licensed Burners.**

Is there any reason why you should equip your lamps with cheap **Protect your customers as we do protect you.**



infringing imitations?

For Information and Prices Apply to
H. KIRCHBERGER & CO.,
GENERAL LICENSEES,
50 Warren St., New York

Scandinavian Fur & Leather Co.

...Highest Grade of...

Auto Garments

of every description
for ladies and gentlemen

LEATHER COATS
VESTS CAPS
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SILK RUBBER COATS
PONGEE DUSTERS
LINEN DUSTERS

RUBBER COATS AND SHIRTS

CHAUFFEURS'
WATERPROOF
CLOTH SUITS

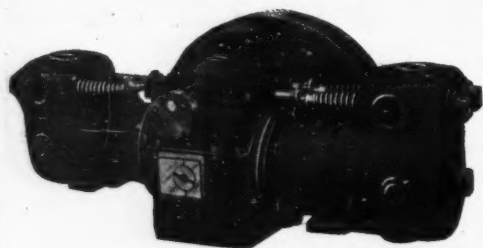
Write for new catalogue

Scandinavian Fur & Leather Co.

14-16 West 33d St.
NEW YORK



BEAVER * MOTORS



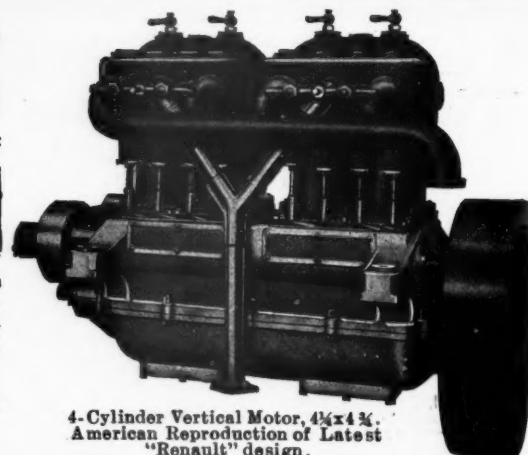
Horizontal Opposed Cylinder Engine, 4x4.
Same Engine 5x4.

Design, Workmanship, Material
and Performance Fully Guaranteed

We are equipped to furnish these engines on a manufacturer's—not a builder's—basis. This guarantees low cost, interchangeability of parts and uniform performance.

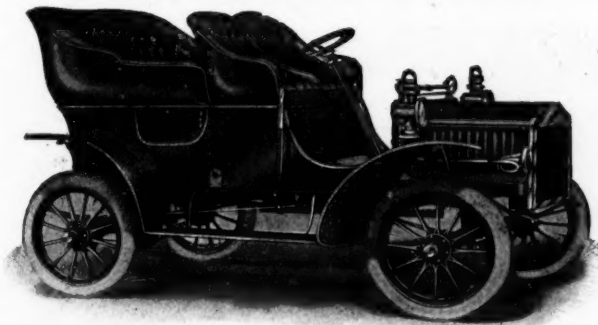
BEAVER MFG. CO.

MILWAUKEE, WIS.



4-Cylinder Vertical Motor, 4x4.
American Reproduction of Latest
"Renault" design.

THE MICHIGAN TOURING CAR



Model "E." \$1,250

The Car of POWER
The Car of BEAUTY
The Car of SAFETY
The Car of ROOMINESS
The Car of SPEED
The Car of ALL AROUND EXCELLENCE

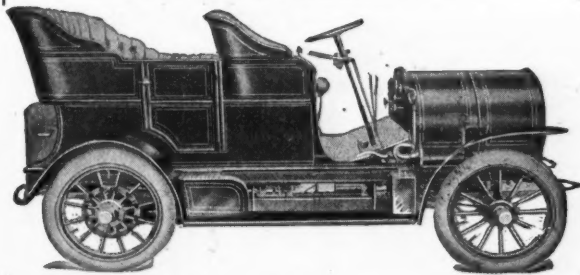
WE HAVE THE PROOF

Write TODAY for it

Michigan Automobile Co., Ltd.

KALAMAZOO, MICH.

THE EXCELLENT



GROUT

A Steam Touring Car Thoroughly Built.

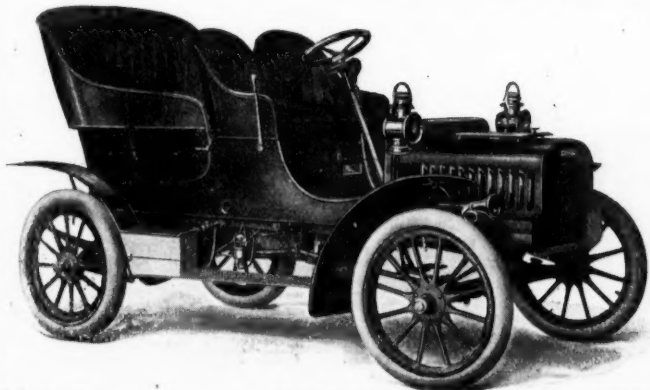
Price, \$1500.
Capacity, 5 people.
Side Entrance.
Wheel-base, 98 inches.
Wheels, 30x3 1-2 inches.
Frame—Armored Wood.
Road Clearance, 10 inches.
Generator, 18 inches.
Engine, 12 H. P.
Ball Bearings.

Powerful Brakes.
Speed; 30 to 40 miles per hour.
Automatic Fuel Control.
Practically Noiseless.
Automatic Lubrication.
Absence of Vibration.
Side Chain Drive.
Fuel Capacity about 100 miles.
Water Capacity, 40 miles.
Steering, Irreversible.

Grout Bros. Automobile Co.

280 East Main Street, Orange, Mass.
Boston Branch—151 Columbus Ave.

THE MOLINE



12 H. P. Model "D" \$1000

Double Cylinder Opposed Motor. [4½-in.x4½-in.]
Roller Chain Drive.
86-inch wheel base. 30-inch wheels. 3½-inch tires, rear; 3-inch front.
Detachable tonneau with comfortable side entrance.

Model "B" is our 4 cylinder, 18-20 H. P. Touring Car with shaft drive, 105-inch wheel base, luxurious side entrance tonneau, which sells for \$1600

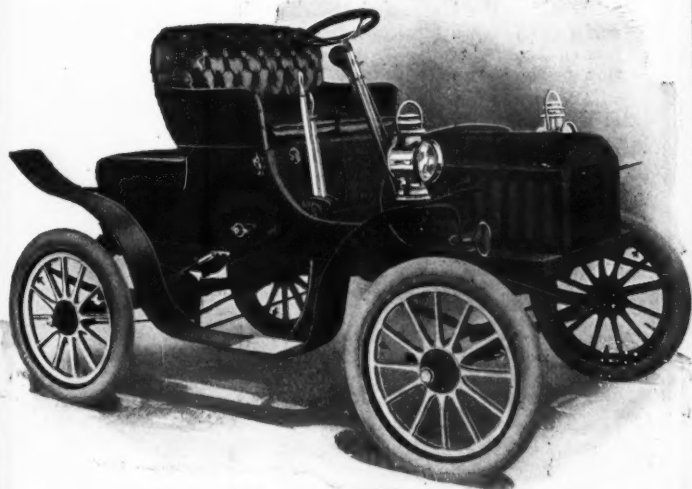
MOLINE AUTOMOBILE COMPANY

EAST MOLINE, ILLINOIS

AGENTS.

Mead Motor Co., Chicago.
Hipp, Reitz & Hall Auto. Co., Cleveland, Ohio
Oscar Lear Auto. Co., Columbus, Ohio.
Richmond Jarvis Co., Grand Rapids, Mich.
Matthewson Automobile Co., Denver, Colo.
Wm. Gregory, Los Angeles, Cal.
Buck Auto. Co., Davenport, Iowa.
Northern Automobile Company, St. Louis, Mo.

The SANDUSKY AUTOMOBILE CO.Courier



STYLE F. \$650.

We can make immediate deliveries on the above model. We are turning out a new Light Tonneau Runabout for \$800, on which we can make deliveries after April 15. Write for catalogue.

The Sandusky Automobile Co.

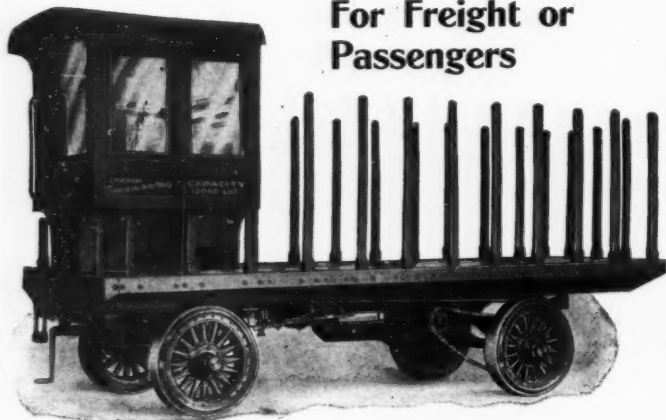
1107 Camp Street

SANDUSKY, OHIO, U. S. A.

Member Association Licensed Automobile Manufacturers.

GASOLINE Commercial Vehicles

For Freight or
Passengers



Five Ton Truck

Now operating successfully, demonstrating economy, reliability and endurance.

ENGINE—Four cylinder vertical, improved design.

SLIDING GEAR TRANSMISSION—Three speeds ahead, maximum, 10 miles per hour. One reverse. Any capacity or speed. Write for prices.

Chicago Commercial Auto Mfg. Co.

Successors to WHITING FOUNDRY EQUIPMENT CO.

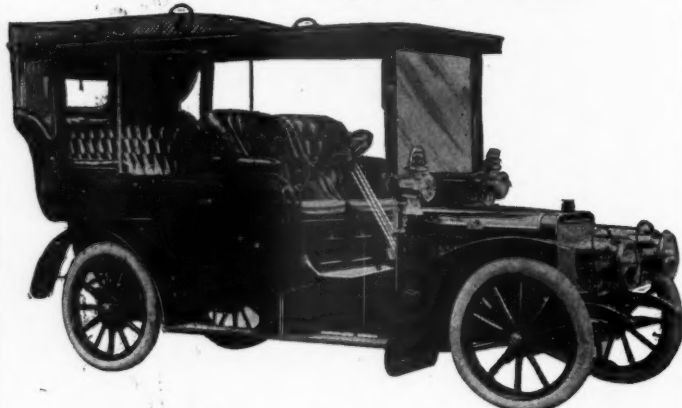
HARVEY, ILL. ... (Chicago Suburb)

New York, 29 Broadway

Boston, 141 Milk St.

THE DARRACQ

Represents the Most Advanced
Features in Foreign Improvement



Equipped with the Latest Magneto and Jump Spark
Ignition :: Perfect Automatic Throttle
Control :: Positively Noiseless

LET US PROVE THIS TO YOU

ALL PARTS KEPT IN STOCK

THE F. A. LA ROCHE CO.

652 to 664 Hudson Street, :: :: NEW YORK

Up Town Store, 147 W. 38th Street, NEW YORK

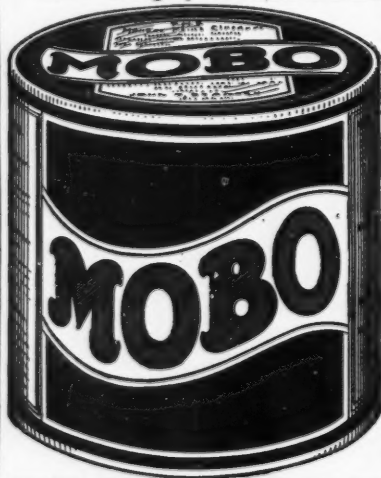
The Care of the Car

Washing the body of the machine, keeping the polished surface free from lubricator, road dust and gutter muck is just as essential to the life of an Automobile, as is the attention given the running gear.

Mobo, the new cleanser for Automobiles, will easily and quickly remove grease, dirt and grime and all traces of a hard run, without dulling or scratching the highly polished surface.

MOBO

is unlike common soap, as it positively contains no free alkali. Being a preservative as well as a cleanser, it prevents varnish or paint from peeling or cracking, and adds a fine gloss to the surface.



Mobo may be used with profit on leather goods, harness or woolen fabrics. Cannot harm the most sensitive skin, as it is a purely vegetable oil preparation and absolutely contains no free alkali. Put up in 2-lb. and 8-lb. cans; also in tubs, half barrels and barrels.

If your supply man does not keep *Mobo*, send us his name and address, and we will see your wants are supplied.

JOHN T. STANLEY
New York.

IMPORTED AUTOMOBILES

Bayard-Clement Darracq

Decauville

etc., etc.

Renault

THE GERMAN AND FRENCH
AUTOMOBILE INDUSTRY

ENGINEER S. De FEHER

318 Drexel Building
PHILADELPHIA, PA.

4 Cylinder
16 H. P.

PREMIER

Air Cooled
1600 lbs.

The Quality Car

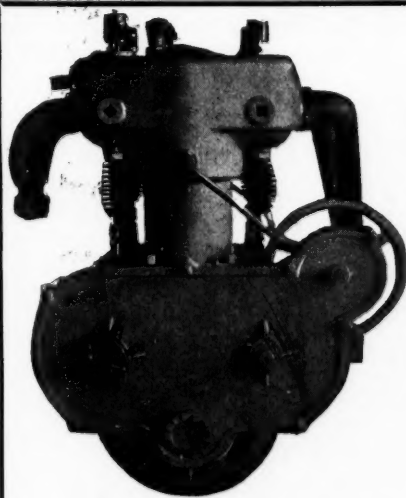


These cars have shown such convincing proofs of their superiority over all other cars of their class, as have taxed our capacity to satisfy the demand.

Dealers and users are quick to recognize their good points—Efficiency, Strength, Economy, Beauty and Speed.

**EASY TO SELL EASY TO DRIVE
WRITE FOR CATALOGUE**

PREMIER MOTOR MFG. CO.
1001 Georgia St. INDIANAPOLIS, IND.

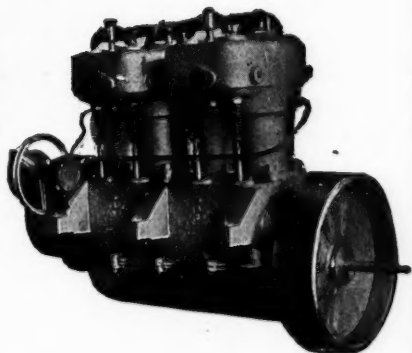


**BUY
KAESTNER
PRODUCT**

MOTORS

FOR

**Automobiles
Boats
and
Mining
Machinery
Transmissions
Etc.**



CHAS. KAESTNER MFG. CO.
SOUTH BEND, INDIANA

LAMP SKINS

You can't tell by the skin of a lamp what kind of a light it will give. Copying every screw head doesn't make a light of inferior quality as good as the genuine Rushmore Lens Mirror Searchlight. Some makers seem to think so, however, or rather, they make lamps up to resemble the Rushmore in every detail, and for the sake of profit misrepresent it to be "just as good," or the "same thing." Of course, they know better, but the public does not, and the public has to suffer for its credulity.

For the sake of large profits, dealers offer automobile lights which resemble the genuine Rushmore, claiming they are "just as good." They know that they can never get the famous Rushmore Short Focus Lens in anything but a genuine Rushmore light, which has the name engraved on every one. If you think an imitation is what you want, buy it. It really does not matter that you pay for it a price for which you could secure a genuine Rushmore, but do not expect to obtain the same value or service from it.

Look for the Rushmore name engraved on every genuine Rushmore light. For sale by all responsible dealers or the

RUSHMORE DYNAMO WORKS
PLAINFIELD, N. J., U. S. A.

THE LIMIT

**OF UNFAILING
CARBURETER
EFFICIENCY**

Here's Proof

From the
Four Wheel Drive Wagon Co.
of Milwaukee
Commercial Motor Vehicle
Builders

... After expending about \$150 for various makes of carbureters and finding them all defective because of lack of range in throttling the engine, we were much pleased upon installing your Acorn carbureter.

We find this carbureter feeding the engine evenly and properly from the lowest to the highest speeds and WE DO NOT HESITATE TO RECOMMEND IT AS THE BEST CARBURETER WE HAVE TRIED.

IT FED OUR ENGINE PROPERLY IN ALL OUR RECENT TESTS, HAULING AS HIGH AS 27,000 LBS. GROSS WEIGHT ON OUR TRUCK, NEVER MISSING EXPLOSION A SINGLE TIME. ... ETC. FOUR WHEEL DRIVE WAGON CO., H. Theo Hansen, V. Pres. and Mgr.

It's not what we claim, so much as what actual users say of

ACORN CARBURETERS

that proves their Sterling Reliability. A trial will convince anybody. Write

BLACK & KRUEGER
Milwaukee Wisconsin

The Highest Pitch of Perfection

yet realized in American automobile construction is found in the

American Mercedes

which weighs with touring body 2,200 pounds, and has one horsepower for every 50 pounds of weight. But the American Mercedes is not a domestic car; it is the 40-45 horsepower Mercedes built in America. Many of its vital parts are of imported materials, and the principal drop forgings come from the Mercedes dies. On the road it shows all the qualities—flexibility of control, silence, responsiveness, and speed—which have made its prototype the most famous car in the world.

PRICE, \$7500

—the Paris price of the Mercedes.

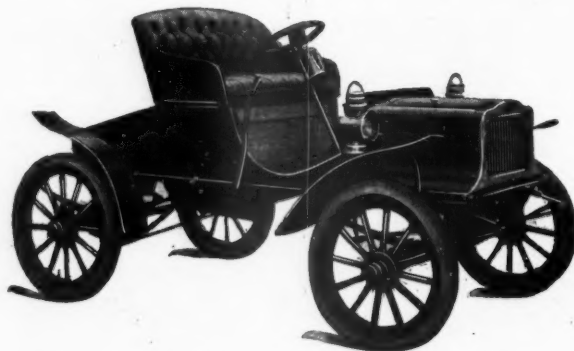
Daimler Mfg. Co.

973 Steinway Ave., L. I. City, New York

Write for booklet.

New York City Garage, 10 West 60th Street

The \$500 Gale



WE wish to state that because this car is sold at so low a figure, is no sign that it is cheap. Every part is the best that we can make or buy, and we will replace any defective parts free of charge at any time inside of one year after purchase.

Eight H. P., horizontal single cylinder 5"x6"; weight, 1,100 lbs.; 72" wheel base; 28"x3" tires. New-type transmission; two speeds, forward and reverse; absolutely oil tight; cone clutch on high speed; new-type bands on low and back up; no gears running on high speed. Pump direct connected to engine. Gasoline and water tanks hold five gallons each. Kingston carburetor, Dow vibrator coil, Brown & Lipe differential, diamond chain. Speed, 30 miles per hour. Frame, angle iron. Body can be tipped up by loosening two nuts in floor of car and removing cotter pin. Car can be run without body, as all wires, connections, etc., are on the chassis.

Chicago Agents: MEAD MOTOR CO.,
1245-45 Wabash Ave.

THE WESTERN TOOL WORKS, Galesburg Ill.

Best and Cheapest

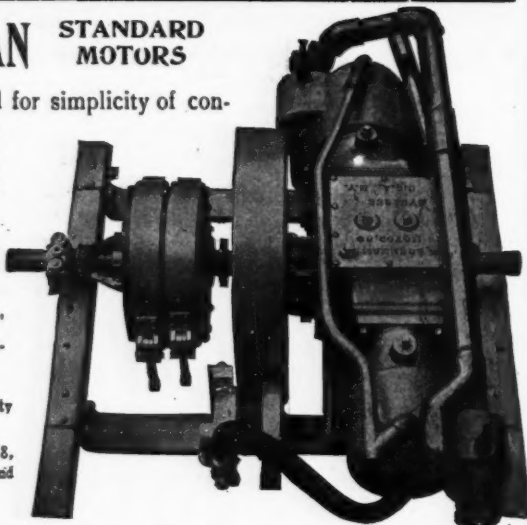
BRENNAN STANDARD MOTORS

are unexcelled for simplicity of construction, substantial and large bearings, ease of adjustment. All parts unusually accessible for inspection.

Built in 6, 8, 12, 14, 16 and 20 h. p. Investigation solicited.

We make a specialty of Motors for

THOMAS MODEL 18, CADILLAC, FORD and OLDSMOBILE.



Terre Haute, Ind., Feb. 17, 1905.

Brennan Motor Co., Syracuse, N. Y.
Gentlemen:—The writer has been operating one of your motors, a double cylinder eight horsepower for the past two seasons and wishes to state that the motor has given excellent satisfaction and the repairs on same have been nothing whatever. The motor is being used on a 1,200-lb. runabout automobile. Would state that with the exception of twice I do not know of the motor stopping of its own accord during the season. I am satisfied that I have had excellent good luck and wish to recommend the Brennan motor to any one wishing a motor for an automobile. Yours truly,

NAME WILL BE GIVEN ON APPLICATION
Write for Particulars.

BRENNAN MOTOR CO.

SYRACUSE, N. Y., U. S. A.

EFFICIENCY AND DURABILITY
are important factors

Diamond Chains

ARE STRONGER
and will wear longer
THAN OTHERS

Insist upon having your new cars equipped with them.

Replace your worn out and noisy chain with a "DIAMOND."

WE MAKE
"DIAMONDS"
to fit sprockets of any standard

They are used as regular equipment on the following cars:

Locomobile
Pope-Toledo
Thomas
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Apperson
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Woods
Lane

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Stevens-Duryea
Burt Mfg. Co.
Caps Bros.
Veracity
Carlston
New-Way
Union
Fredonia
Acme
Standard
Tinscher
Whiting

Diamond Chain & Mfg. Co.

INDIANAPOLIS, INDIANA

\$35.00

The

\$35.00



has already been placed on over One Thousand cars since Oct. 1, 1904. There will be over Ten Thousand so equipped before same date in 1905.

To Dealers we say—**DON'T DELAY!** but reap the profit on the large business to be done when you are selling and delivering your new cars.

To Drivers we say—**DON'T DELAY!** but thoroughly enjoy night driving by doing away with all the annoyances and disappointments of Acetylene Generators.

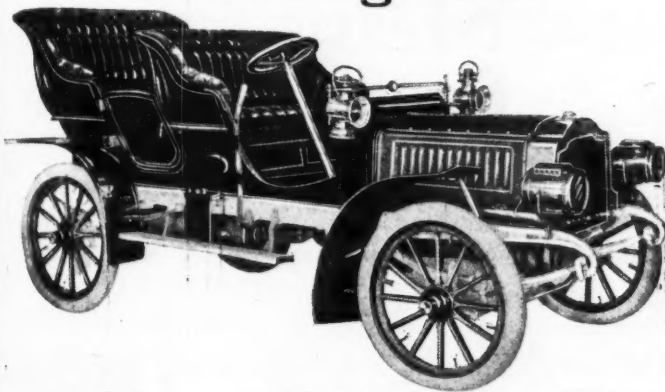
PREST-O-LITE gas tanks will supply gas for any type gas lamp. Tube from tank to lamp is the only attachment necessary.

Get a catalog from

THE CONCENTRATED ACETYLENE CO.
Indianapolis, Ind.

THE NEW HAMMER

Touring Car



24 h. p. 4 cylinders \$2,500

Unexcelled for Simplicity of Speed and Steering Arrangement.

More Selling Points for the Seller

More Buying Points for the Buyer
than any other line in the world.

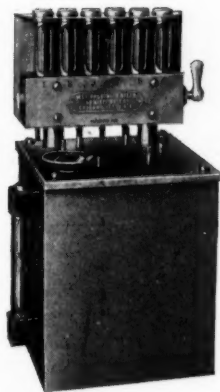
Our catalogue tells the complete story and tells it well.
Send for yours.

Hammer Motor Co. 1430 Majestic Bldg. Detroit, Mich.
Also Builders of Auto Boat Engines and Commercial Vehicles

THE HILL PRECISION OILER

INSURES PERFECT LUBRICATION

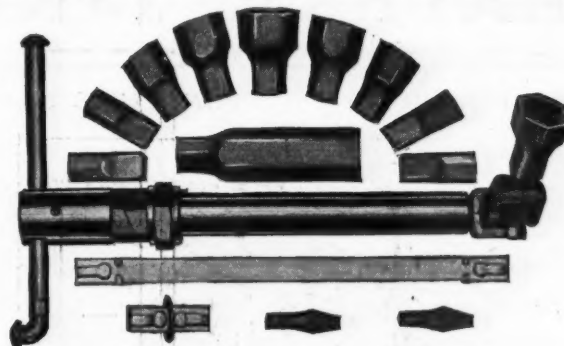
**Your Money Back if it
Does Not do the Work**



It measures the oil, and uniformly forces exact quantities to each bearing it serves, regardless of the resistance, or of the varying resistance, in the different tubes. It feeds only when the machinery is in motion.

THE STEEL BALL COMPANY
832 Austin Avenue
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THE AUTO CLE



The Auto Cle Wrench comprises all the above parts. These sockets fit any nut or bolt on any machine.

The swivel joint works at an angle enabling the easy reaching of the most inaccessible part of the machine.

The Auto Cle has a ratchet movement in either direction, right or left hand.

Saves its cost in a short time.

Send for Circular.

Sole manufacturers for the United States.

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CHICAGO

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Guarantee Means Something

Noah Webster must have had **DURQ** in mind when he defined the word "guarantee." Here it is: **GUARANTEE** [gar-an-te]

In law and common usage, etc. *** to assure *** a thing that may be depended on. ***

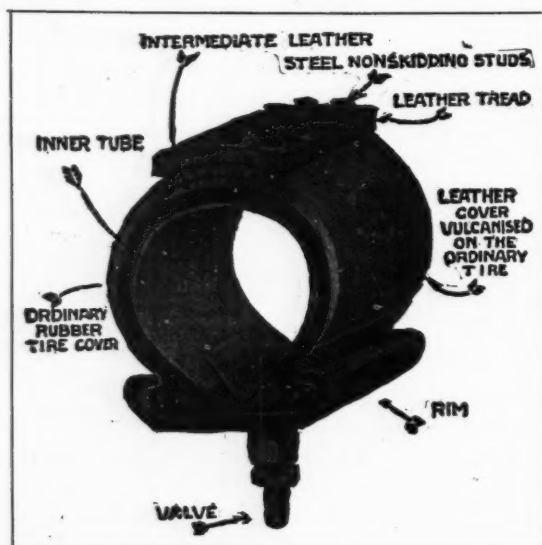
Only *we* go further than Noah and **WAR-RANT DURQ** batteries to give the *same* output *one year from now* as they give *today*. And **DURQ**'s output today is *guaranteed*. Why don't you write?



CHICAGO BATTERY CO.
1400 Michigan Avenue
CHICAGO

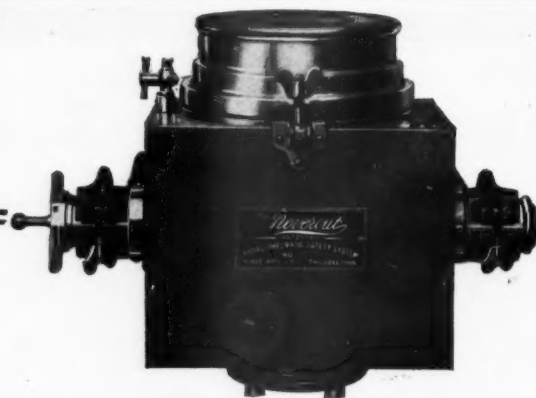
SAMSON LEATHER TIRE

NON-SKIDDING :: :: PUNCTURE PROOF



BRANCHES
Paris London Vienna Brussels Berlin Rome
NEW YORK BOSTON
12 W. 35d Street 20 Park Square

A. E. GALLIEN, Manager



The Neverout

TRADE MARK
Patent
Safety Gas Producer

puts an end for once and all to every form of motor-car lighting troubles. It does it in a simple, safe and economical manner.

The gas is instantly generated and at once produces a steady, penetrating, intensely white flame. Turn it off and the generation stops immediately. No gas confined under pressure; no danger of explosion.

No waste, no trouble, no odor, no after-generation.

It keeps the carbide intact for months. None of it is wasted—every bit is turned into gas.

The Neverout

TRADE MARK
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projects this light with the greatest power and brilliancy.

Write for illustrated catalogue

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E. E. Gray Co.

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WHOLESALE GROCERS

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Boston

March 6, 1905

Motor Age
Chicago
Gentlemen

Enclosed please find two dollars for subscription to *Motor Age* for the year 1905. I will take this opportunity of saying that I don't think there is a better *Auto Magazine* published than the *Motor Age*. Right, new, clean cut reading matter, and I look forward every week to the enjoyment of reading it from the first page to the last. This letter is voluntary on my part as I fully appreciate the work it means to keep a magazine up to the standard of this one.

Yours with best wishes
E. E. Gray

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 Samson Non-Skid Attachment on Continental Tires now in stock. Send for prices.

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TIRE SAFETY VALVES

we are unable to make deliveries under ten days from receipt of order.

Write today for circular and testimonials.

Fig. II

Eastern Auto Appliance Co.
 BOSTON, MASS.



THE HEART OF THE AUTOMOBILE

The Schebler Carbureter

This is the model No. 1 racing Schebler, which was attached to the automobile that broke all world's records for light and middle weight cars and defeated the big 90 h. p. foreign cars, at the Empire City track, Nov. 8th.

If you want to get full power and speed of your engine, besides having a carbureter that gives a perfect mixture at all engine speeds and is not affected by weather conditions, buy the **SCHEBLER**. It is high priced but it does the work.

Special connection for attaching the Schebler to Oldsmobiles, any model.
 Special size carbureter for the Ford two and four-cylinder cars.

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It is just what you have been looking for

Quickly attached and detached.
 Creeping and Rim Cutting entirely avoided.
 Made of the very best material and workmanship throughout.
 Write us for full particulars.

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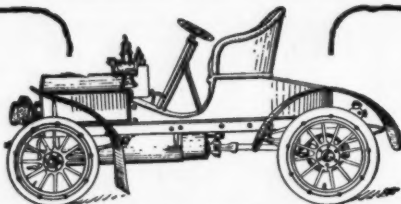
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The Fastest Touring Car in the World at the Price.

Complete with two headlights, sidelights, tail lamp, horn and top.

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Complete with headlights, sidelights, tail lamp and horn. Touring Runabout, Semi-Racing Body.

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LIGHT WEIGHT—HIGH POWER.

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Simplicity of Operation, Elegance of Appointment and Design, Highest Degree of Workmanship, Greatest Power in Proportion to Weight, CORRECT ENGINEERING PRACTICE THROUGHOUT.

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"SHOW THE WAY"

If you don't drive at night you don't need a lamp of any kind, but if you do, there is no more important part of your car than the lamp. Reliability and an intense light characterize the SOLAR, and are due to proper construction of lamps and correct principal of generator.

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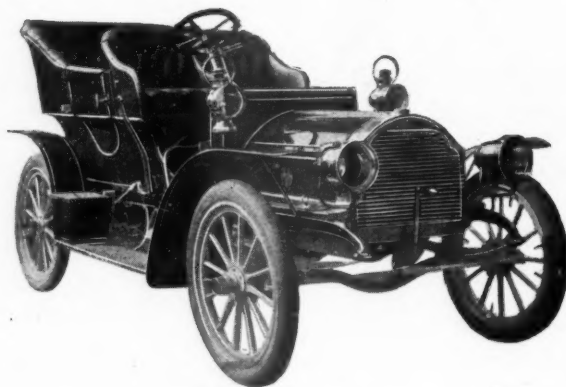
BY COMPARISON

...THE...

STODDARD-DAYTON

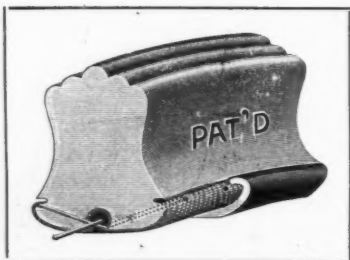
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Resilient, Durable and Reliable

Write for new book on "experiences of others." It will interest you

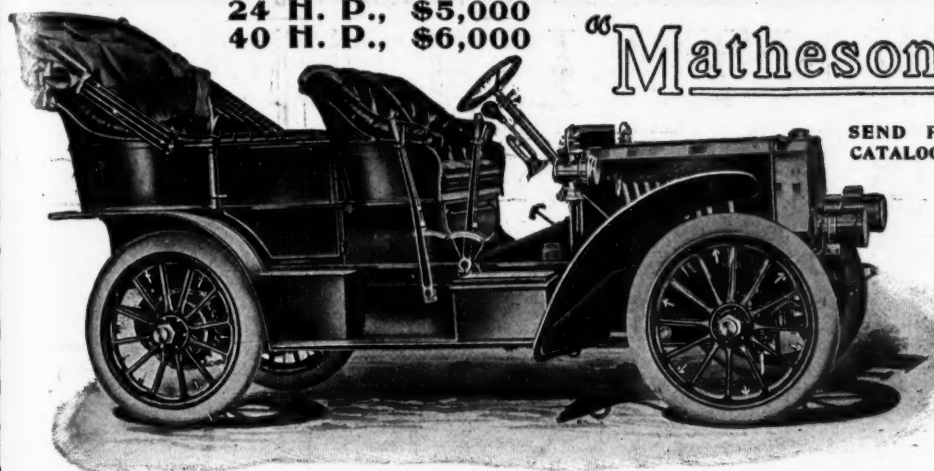
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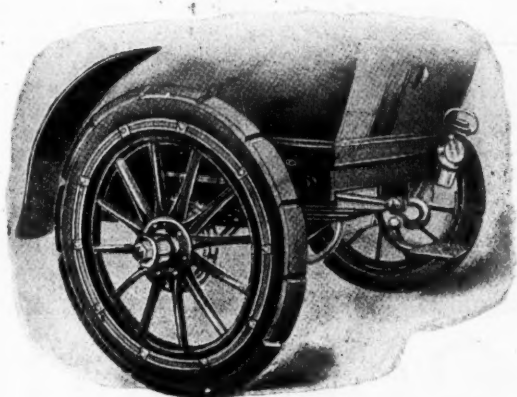
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WON'T SLIP ... WON'T SKID



NON-HEATING

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Your Tire Never Wears Out if
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Simplest, Most Practical and Durable Tread Made

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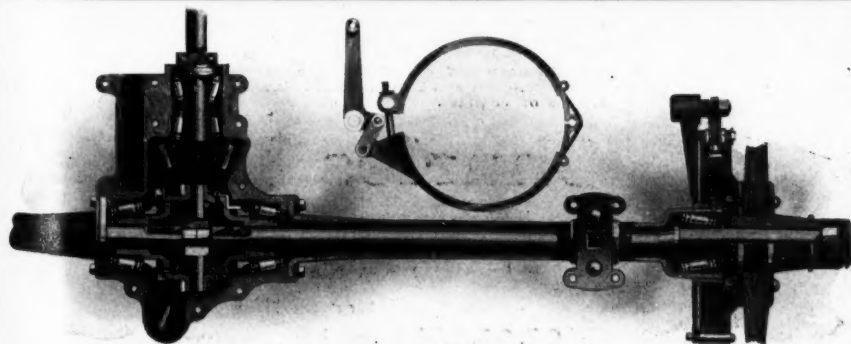
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Is a green soap, consistency of paste, a perfect cleanser for automobile machinery and all vehicles; will not injure the most highly polished surface. Made from pure vegetable oils. If your dealer does not carry AMERICAN CROWN SOAP in stock, send us his name and address and we will see that your wants are supplied.

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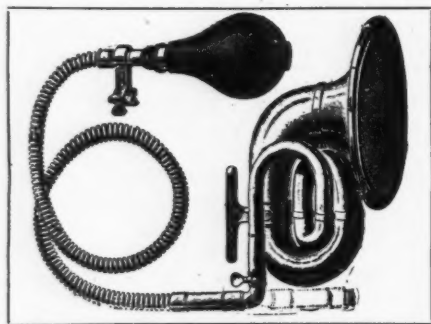
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HARRIS OILS MAKE SPEEDY RUNNING

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Made DETACHABLE or RIVETED
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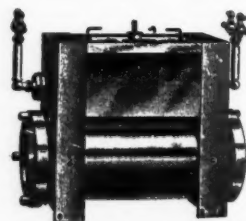
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Capacity 54 ozs.

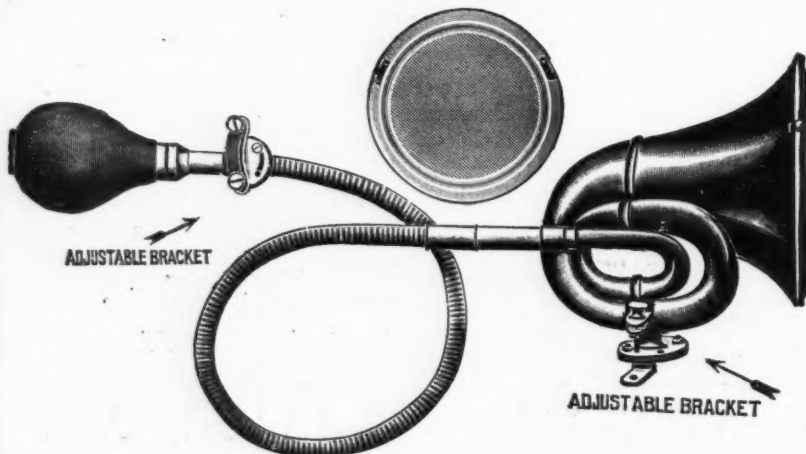
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Just a Fact



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The latest European idea of a
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in the body of horn, which pro-
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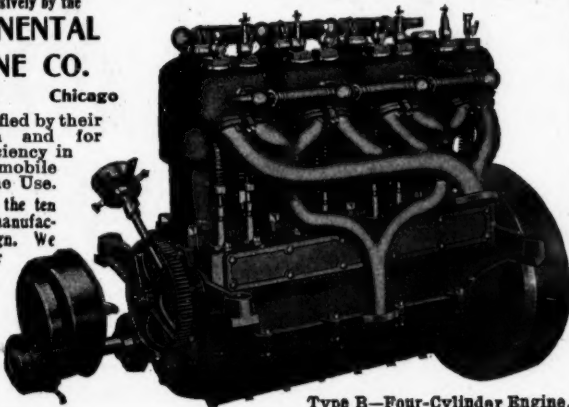
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Are identified by their
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This is one of the ten
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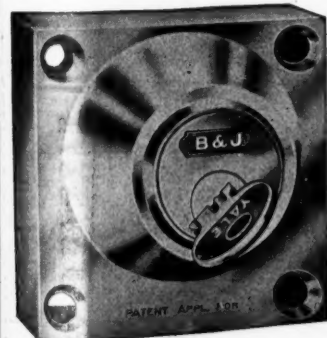
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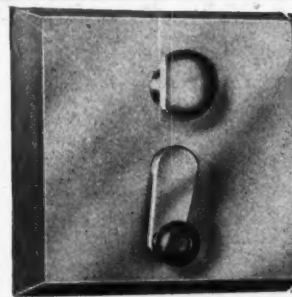
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Applicable to any car. As re-
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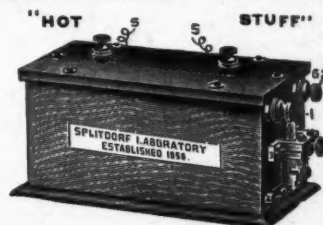
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Complete
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Pressure
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Made of
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5 in. long; 2 3/4
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Attach hose to tire; start engine and the
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Fit any car. Explosions cannot
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Dealers will order early.



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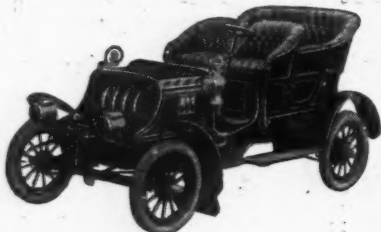


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"Air Cooled."
16 Horse Power.
Beautiful Finish.
Easy Rlding.
Reliable.

Keeps cool
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"Seeing is believing."
A trial proves it.
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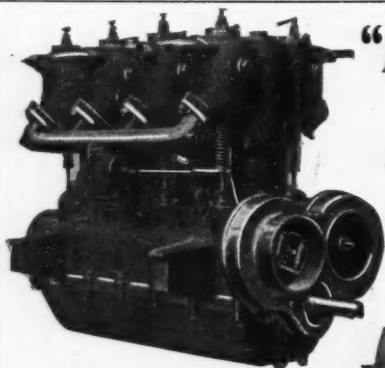
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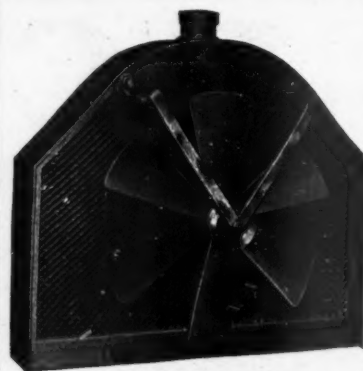
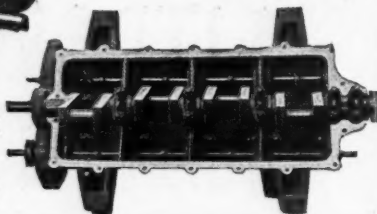
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Cyclometers, Odometers, Tachometers, Counters and Fine Castings.

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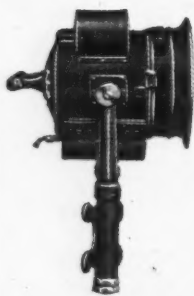
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Ammeters, 0-15 Ampere - - \$4.50
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If your car is equipped with it
others slow down to let you pass.

**YOU CAN SEE AROUND A
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We make Copper and Galvanized Iron
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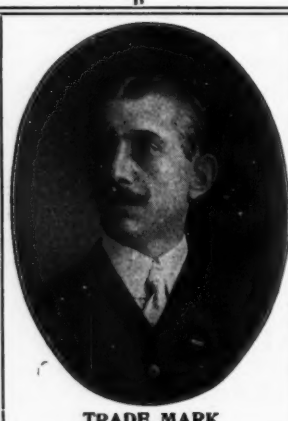
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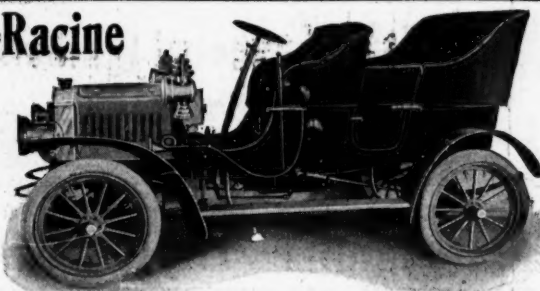
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enameling all grades of Automobile
trimmings. Makes soiled
leathers and clothes clean and
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The quickest, easiest, simplest and
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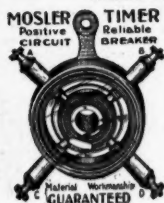
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They ACTUALLY "SPIT-FIRE" while others spark only

BASE { Facilitates Sparking. Makes Plugs Spit-Fire.
Acts as Condenser of Electricity.
Protects Insulation and Sparking Points.

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The only kind of sparking worth while is where

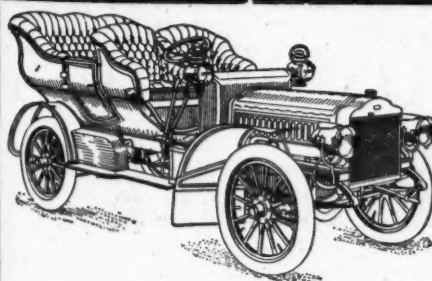
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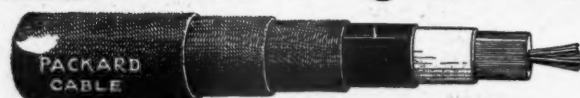
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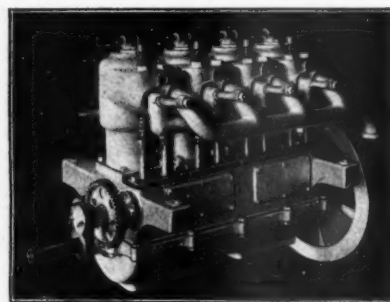
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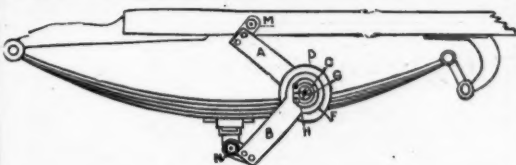
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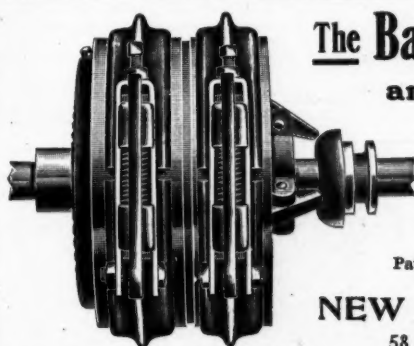
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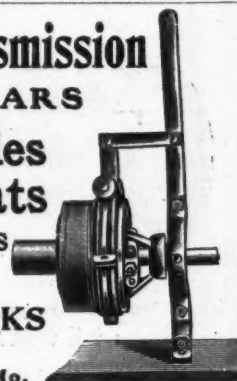
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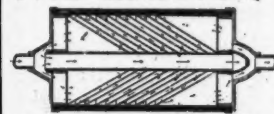
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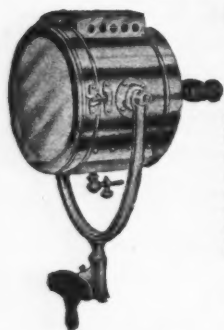
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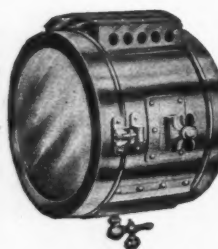


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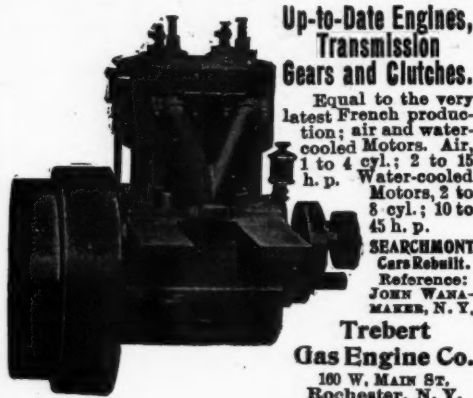


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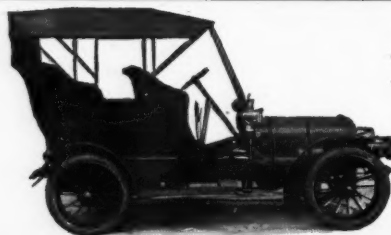


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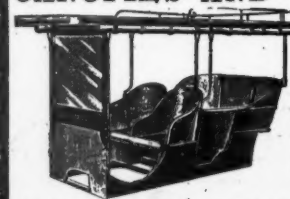
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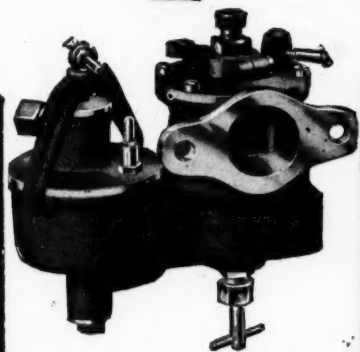
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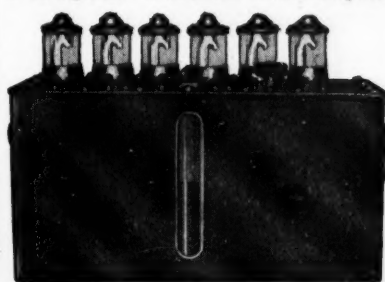
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One Coil for any number of
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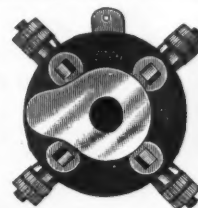


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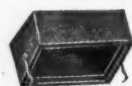
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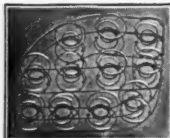


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SAVES HALF YOUR TROUBLE
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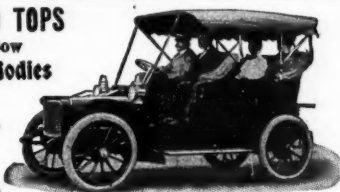
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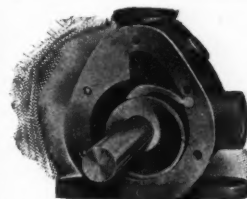
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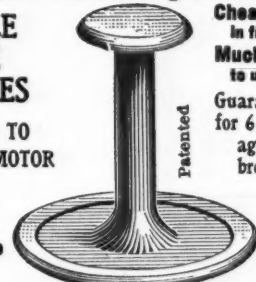
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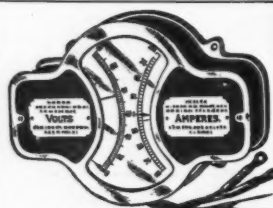
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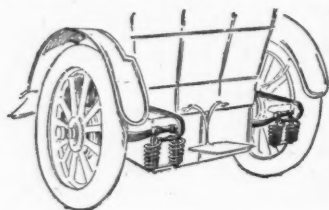
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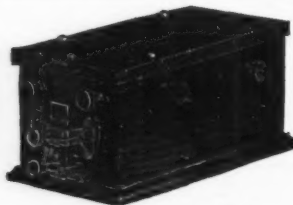


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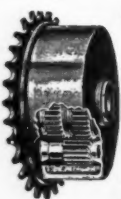
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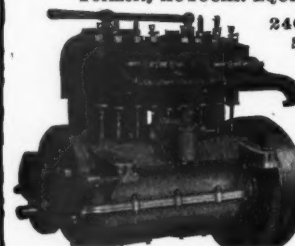
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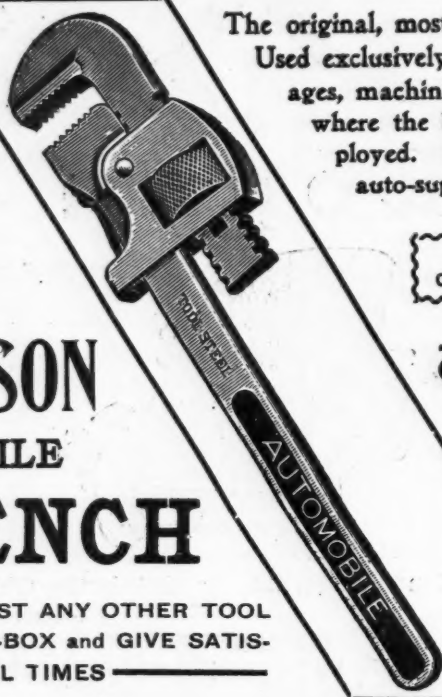
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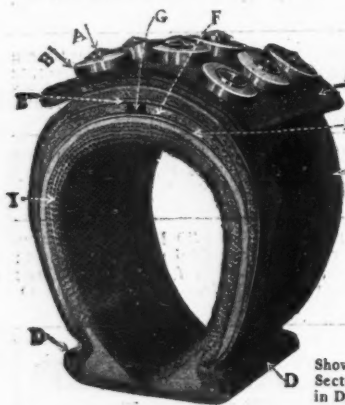
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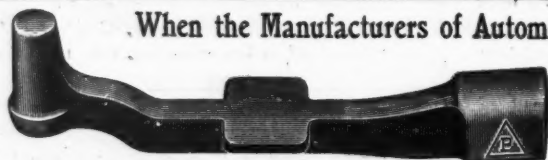
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